Clinical Lecture ON OSTEO-SARCOMA.

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J. M——, aged twenty-four, was admitted into the hospital on the 27th of March. She was a well-made young woman, having light-brown hair, blue eyes, and a clear fair skin. Her mother died when forty-five years of age, from some affection of the uterus. Her father is alive and well. She has brothers and sisters, some older, some younger, than herself, who are in good health. Our patient had four children, the youngest being only a month old when she came into the hospital. J. M—— stated that four years ago she felt a peculiar numbness over the right shoulder; after a time the part became painful, and she then noticed that there was a distinct swelling over the region of the scapula, which had gradually increased in size, causing her great pain. She was consequently sent into the hospital by Mr. F. W. Butler, of Brighton.

On admission, a tumour about the size of an infant's head was found occupying the region of the right scapula. It projected forwards through the axilla, beneath the pectoral muscles; it also passed under the outer part of the clavicle. The tumour surrounded a considerable part of the shoulder, but the joint was apparently not implicated in the disease. I thought I could detect the subclavian artery above the upper edge of the tumour, but the circulation through this vessel was evidently impeded, for there was only a feeble pulsation in the brachial artery. The right hand and arm were œdematous. The skin was not adherent to the tumour, and was apparently perfectly healthy except in one or two patches, where it was red and inflamed; beneath these spots fluctuation could be felt, otherwise the whole mass of the morbid growth felt firm and hard. It was movable on the surrounding structures. No dilated veins could be seen coursing over it. There were no enlarged cervical or other lymphatic glands in the neighbourhood of the morbid growth. Our patient suffered from excruciating pain in the tumour, right side of the neck, and arm, which we could not relieve by morphia, chloral, or any other drugs. She urged me to take away the tumour at any risk.

J. M——'s child having been weaned, and her general health improved as far as possible, I proceeded to excise the scapula, outer half of the clavicle, together with the right arm. I determined in the first place to tie the subclavian artery, and having to take away the outer half of the clavicle, I commenced the operation by removing about an inch from the central part of the bone. Having done this, I found a portion of the tumour passing upwards behind the sculenus muscle. I was unable to discover the artery, and it was impossible to waste time in searching for it, or running the risk of wounding one of the large veins at this stage of the operation, so that I made the necessary incisions through the skin over the tumour, and, having separated it from the surrounding tissues, it was turned forwards together with the arm over the chest, and was then readily severed from the body; but in spite of the able assistance I received, the hæmorrhage during the last stage of the operation was very great. The patient lived until the following day. She sank from the effects of the loss of blood which had occurred during the operation.

There can, I think, be no question as to the desirability of dividing the clavicle in the first stage of an operation for the removal of the scapula and arm, and it is evident if the subclavian artery can then be secured, the risk of severe hæmorrhage is greatly diminished; but in the living subject, and supposing the vessel is in its normal position, it is by no means always easy to put a ligature round this artery, and if its relations to the surrounding parts are distorted by a morbid growth such as we had to deal with in this case, the difficulty of securing the subclavian in the third part of its course is much enhanced; we should always therefore be prepared under these circumstances to abandon the attempt. It is impossible to waste time in searching for the vessel, the patient necessarily losing blood while we are doing so, and we must proceed at once to separate the tumour from its surroundings, and, thrusting it and the arm forwards, pass a ligature if possible round the subclavian, or, having the vessel securely grasped by an assistant, divide it the last thing before completing the separation of the parts from the body.

There might be a question as to the propriety of taking away the scapula, arm, and half the clavicle, but I have the published records of thirteen cases of the kind, and in eleven of them the patient lived for upwards of six months after the operation, in two death occurred directly from hæmorrhage or shock; so that, provided the case under our notice was a proper one to operate on, it was evident the removal of these parts was a measure warranted by previous surgical experience. I believe also that, if any operation was to be performed, nothing less than the removal of the parts I have above mentioned was justifiable; for if we had attempted to preserve the arm it was more than probable some of the morbid growth would have been left behind attached to the structures surrounding the upper end of the humerus, and so the disease would have rapidly reappeared in the wound; and, further, I was convinced, from the patient's condition, worn out as she was with pain, that it was needful to expedite the operation as much as practicable, and while excising the tumour we should be unable to afford the time to make an elaborate dissection of the morbid growth in the axilla, supposing we could even have done so without dividing some of the large vessels and nerves supplying the limb.

While considering the circumstances of the abscission of this tumour, we necessarily had to determine the nature of the morbid growth, and the probabilities of its recurrence after removal. In this case there was no enlargement of the lymphatic glands, so far as we could ascertain; the tumour was movable on the ribs, and was evidently isolated in a great measure from the tissue among which it grew; the skin was not adherent to the tumour, nor were there any enlarged veins coursing over its surface; the patient's eye and complexion were remarkably clear; she had rather the appearance of a person suffering from hectic than the dull jaundiced hue of advanced cancerous cachexia; consequently, although the tumour had of late grown rapidly, and therefore caused the patient intense pain, nevertheless, from the symptoms and appearances it presented under the microscope (of a portion of the tumour removed by means of a grooved needle), I had no doubt as to the growth being an osteo-sarcoma. I shall subsequently endeavour to explain the etiology of these tumours, and you will then understand how it is that they are liable to appear in various parts of the body. Consequently it was impossible for us to determine in this case, if after the removal of the growth others of a similar kind would not appear in different parts of the body; but from my own experience, and that of other surgeons, I could most distinctly affirm that large osteo-sarcomatous tumours such as this was have been removed, and the patient remained free from the disease for many years, if not for life. Had the lymphatic glands been enlarged, or had there been evidence that the morbid process had infected the surrounding structures, and been not only a rapidly growing but a very vascular growth, then our prognosis would have been unfavourable, for we should probably have had to deal with a malignant tumour, and not with an osteo-sarcoma.

After removing the morbid growth, we were able to inject a small part of it through the subclavian artery, which was found imbedded in the tumour. On cutting into the tumour, we discovered that the bone from which it had originally grown had almost disappeared; the head, neck, acromion process, and a part of the spine, all of which were covered with periosteum, were the only portions of the scapula which remained. The bulk of the morbid growth was composed of a fibro-cellular mass which in parts was dense, almost like cartilage, but which had in places softened and broken down into cavities of an irregular shape. Scattered throughout the tumour were a number of spicula of bone.

However carefully we might examine sections cut from the bulk of this tumour, we should, I think, gain an imperfect idea as to its nature; but you will observe, as is commonly the case in osteo-sarcoma, the morbid action appears to have stopped short at the dense lamina of bone which separates the cancellated tissue with its medullary contents from the articular cartilage. We find the spaces

of the trabeculæ in the head and neck of the bone occupied by a sarcomatous formation. This condition of things extends up to the lamina of bone to which the articular cartilage of the glenoid cavity is attached. To the naked eye this latter structure appears to be white, glistening, and healthy, but if we come to examine sections of it under a quarter of an inch glass, we discover that its cells are undergoing a very peculiar transformation. The nuclei of these cartilage cells have, in fact, undergone a process of proliferation, the contents of the original cell having divided into eight or more portions. Each of these subdivisions of the nucleus is surrounded by an area of soft granular matter constituting a cell, and these cells lie in a coarse granular material, so that each of the original cartilage cells is changed into a giant cell (sarcoma). In many places we see the commencement of this process, in others the giant cells have amalgamated and formed a patch of round-celled sarcoma, and I would have you particularly notice that the hyaline structure surrounding these cells is perfectly healthy; it contains neither vessels nor any trace whatever of disease. You are aware that authorities on the subject hold that sarcoma commences "from connective tissue, as these are always vascular" (E. Wagner); but we have here a striking illustration of the fact that sarcoma may appear in non-vascular structure by the transformation of its cells into an abnormal form. We here see the nuclei of the cartilage cells subdividing and growing into the cells characteristic of sarcoma. The abnormal change seems to be simply one of perverted growth taking place without the intervention of any foreign element or visible external agencies. I think it requires no great stretch of the imagination to conceive the idea that the contents of these cartilage cells had acquired an inherited fault which at a certain period of its life manifests itself in the ill-conditioned growth we call sarcoma.

If the cell-contents of cartilage undergoes changes such as those I have described, it is reasonable to suppose the round cells of the medulla of bone, which are the direct descendants of temporary cartilage cells, might be affected in the same way. I have before explained to you that it seemed to me the round cells of the medulla result from the fertilisation of the temporary cartilage cell by the white blood-corpuscle, and that this compound cell inherits the properties of its progenitors, on the one hand being capable of forming bone, and on the other fibrous tissue. We can understand therefore how it happens that, while this morbid growth has destroyed the scapula, there is a considerable quantity of new bone formed throughout its substance; for instance, on examining sections through the neck of the scapula, we see its cancellated tissue full of sarcoma, and as the integrity of the trabeculæ depends on the health of the medulla, so when this latter structure becomes diseased the bone rots away. On the other hand, bone has formed in irregular patches throughout the bulk of the tumour, because the cells constituting the morbid growth have a tendency to revert to their normal functions and form bone, they are incapable of doing so in proportion as their perverted or diseased properties preponderate over their healthy action; and so some of these osteo-sarcomas contain a complete skeleton of bone, others large and irregular patches of it, and some are pure sarcoma, although originating in the medulla of bone. These tumours have frequently been described as cartilaginous or fibro-cellular, myeloid, and so on; but when examined under the microscope they contain "a dimly granulate stroma, closely resembling the material of cartilage, but containing no true cartilage cells," because, as I have explained, the tumour originated in a perverted growth of the round cells of the medulla, which, being the descendants of cartilage cells, tend to the formation of a modified form of cartilage, fibroid tissue, or of bone, in their irregular growth.

In practice we find that the osteo-sarcomatous tumours often grow in, and not unfrequently expand, the cancellated extremities of the long bones, probably because the round cells of the medulla are most plentiful in this locality. These morbid growths may also spring from the periosteum, but this structure, again, contains any amount of the round cells, derived from the same source as those found in the medulla, and liable therefore to take on a similar abnormal action.

If we keep these ideas regarding the nature of these osteo-sarcomas steadily in view, it is by no means difficult to comprehend how it sometimes happens that they contain bone, cartilage, or fibro-cellular structures in various forms and modifications, these being accidental, attending the perverted growths of the medulla. We may also perhaps thus comprehend the clinical history of osteo-sarcoma; for the elements of which these tumours are composed vary according to the inherited tendencies of its cells or of their surroundings, but it is still the outcome of an altered growth in the medulla, and therefore no more infective to other structures than a bone is; and this leads to another practical consideration with reference to this part of our subject.

Osteo-sarcomas do not spread from one part of the body to another, as a rule, by infection or propagation, but the disease originating from a faulty condition of the fixed cells in certain elementary structures, its action is co-extensive with the number of cells in the body capable of originating this peculiar transformation. The affection may therefore be local or general. It is utterly impossible for us beforehand to form a prognosis on this point. We can, however, assert that, as a rule, there is infinitely more likelihood of a sarcoma which has grown slowly being localised to the spot in which it has formed than one which has grown rapidly. For instance, here is a cast of an osteo-sarcoma kindly taken by Dr. Walker, our dental surgeon, from a patient of mine. When about three years of age a tumour, the size of a pigeon's egg, was removed from the alveolar process of his right superior maxilla. About nine years after the operation the morbid growth had re-formed; it was again excised, together with a portion of the bone from which it grew, by Mr. Hancock. But now, after a period of eight years more, we see from this cast the tumour is of considerable size. It has moulded itself to the arch of the palate, and causes the patient but little inconvenience, and so I recommended that for the present it should be left alone; but this is an instance of a slowly growing sarcoma, springing doubtless from the medulla of the upper jaw; in fact, the upper and lower maxillary bones seem to be peculiarly liable to originate osteo-sarcomatous growths, and we find descriptions of them in most surgical works under the heading of "Cartilaginous or Fibro-cellular Tumours of the Jaw." Some of these reach a considerable size before they are removed. One of the most successful operators in cases of this description was my predecessor in Calcutta, Mr. R. O'Shaughnessy. The museum in that city contains some of the finest existing specimens of these osseous tumours.

Although I do not think rapidly growing and vascular sarcomas (generally myeloid) are usually disseminated by means of the blood to the lungs and other organs, still it would be foolish to deny the possibility of the disease spreading in this way, especially as we know how freely the open venous sinuses of the medulla of bone take up pus and other such materials, forming, in fact, a channel through which organic particles can pass to any part of the body, and so broken-down or softening sarcoma may be carried by the circulating fluid to distant organs; yet I have known so many instances where nothing of the kind has occurred that I am disposed, with the evidence at present in my possession, to hold to the ideas above inculcated.

If the origin of osteo-sarcoma is such as I have described, we might reasonably expect to meet with instances of the disease among the lower animals; and such, in fact, is the case, horses, and more especially white ones, are frequently affected with sarcoma. Heckel has attempted from this fact to argue that this is one of the proofs demonstrating that all white horses originated from a common origin, and hence all are susceptible through hereditary transmission to a common form of perverted growth. We might, if we thought proper to do so, very probably accumulate data showing that sarcoma was more common among fair-haired Europeans than in dark persons. Such is the case in a marked degree with both the patients whose histories I have to-day brought to your notice; but then, if we turn to other parts of the world, such as India, we discover that people with black skins suffer from these diseases in as large a proportion as Europeans.

BEQUESTS, &c., TO MEDICAL CHARITIES.—Dame Mary Anne Elizabeth Price, of Lowndes-square, bequeathed £500 to the Hereford Infirmary. The Misses Brooke have given a donation of £500 to the Hospital for Incurables, Dublin. The late Mr. Madden, of Dublin, has left £100 to St. Michael's Hospital, Kingstown, £50 to St. Vincent's Hospital, £50 to Mater Misericordiæ Hospital, £50 to the Hospital for Incurables, and £100 between the Male and Female Blind Asylums. The Merchant Taylors' Company have made a fourth grant of 30 guineas to the National Hospital for Consumption and Diseases of the Chest, Ventnor.

Lumleian Lectures
ON
INSANITY IN ITS LEGAL RELATIONS.

Delivered at the Royal College of Physicians,

BY JOHN CHARLES BUCKNILL, M.D., F.R.S.

LECTURE III.—PART II.

THE subject of *Ignorance* as a mental state produced by disease, and leading to the commission of offences against the law, is still more important, though not so new and interesting to us as physiologists as the one we have been discussing. The legal authorities have, as we know, made too ample use of this mental state in formulating their conditions of irresponsibility; for their terms, "does not know right from wrong," "does not know the nature of the act," are but other forms of expression for ignorance in its various phases. And that there are gradations in this state of mind is constantly recognised in the practice of the courts; although we may also, I think, very fairly divide the pathological ignorance which excuses from guilt not only into degrees but into kinds.

Firstly, there is the simple ignorance of the idiot, varying in degree from that mindlessness which places a human being below the intellectual level of the domestic animals, to that slight imbecility from which more than two per cent. of our convicted criminals are admitted by our prison authorities to suffer. The ignorance of the idiot is peculiar, and he alone may be said "not to know the nature of the act." Lord Justice Bramwell marked this point when he illustrated this condition of irresponsibility by the case of a man who was so idiotic that he did not know that to cut off a man's head, in order to see how the sufferer would look when he awoke, would kill him or hurt him: a state of utter and hopeless idiocy,—an improbable case, says the judge, but I believe it was so—a state which I would myself prefer to illustrate by the case which I know did happen, in which an idiot split a child's skull with his spade, and went on with his work, not knowing what he had done. Cases, of course, in which the question of irresponsibility is likely to be contested in courts are not of this pronounced character, but are more like the one I shall quote from Casper, in which a girl was accused of child murder. Witnesses proved her great ignorance. She could not count, and did not know the value of money. But who was she? The daughter of poor cottagers who for a short time had enjoyed the very meagrest instruction in a village school, and as soon as her physical strength permitted was sent to herd cattle. But though she could not count sums she had never learned, still less practised, there was no proof that she lacked that faculty of discrimination which would indicate to the most stupid country girl that it is not lawful to kill anyone, even one's own child. For, says this judicious writer, whose opinions were weighted with the responsibilities of office as the Forensic Physician to the Berlin Courts of Judicature, "a low degree of intelligence, feebleness of the understanding, absolute stupidity, by no means prove irresponsibility; as always the relative facts ascertained in reference to the case in question must be examined and applied to the elucidation of the point." From Dr. David Nicholson's interesting papers on the Morbid Psychology of Criminals we learn that out of a convict population of 8425 men 200 were weak-minded, sometimes officially called imbeciles, and somtimes also classed as suffering from "other mental diseases than insanity"; being persons whom the author "would not think it right to relegate to an asylum." Imbeciles, as we know, frequently have strong passions, which they may be taught to control, not by the threat of some awful punishment which may overtake them six months hence, but by hourly training. The degree of imbecility, however, will be taken as the most available test of irresponsibility, without much regard being paid to the strength of idiot passion, since the one can be estimated and the other cannot be. Hoffbauer has created quite an elaborate scale of degrees of imbecility, with the corresponding diminution of responsibility for crime, which is, however, very inapplicable to practice; although doubtless some general notion has to be arrived at by courts, even if no definite rule can be fixed. Sir Matthew Hale did lay down such a rule in the dictum that a person is responsible "who hath ordinarily as great understanding as ordinarily a child of fourteen years hath." Another attempt of the same kind, as to draw a line, is the one described by Dr. Alfred Taylor "the rule suggested by Mr. Samuel Warren: that a person, in order to be acquitted on the ground of insanity, should be first proved to be as *unconscious* of his act *as a baby*." But, as Dr. Taylor truly says, "such a rule amounts to a *reductio ad absurdum*."

There can, however, be no just or practicable method of dealing with offenders of weak mind other than that of expediency, and to this class the principle of Lord Justice Bramwell seems to apply with exactitude. Find out the man whom you can deter from wrong-doing by threat, and you will find the man whom it is right to punish. But what threat, and what punishment? Herein lies the *crux* of the question. If a criminal of weak mind has clearly mind enough to be deterred by the remote punishment, or chance of punishment, threatened by the law, it would seem to be expedient that he should be punished by the law; but if he be an idiot, with no forethought beyond the hour, such punishment would be as cruel as it would be useless. To such a man the Cordova cap-maker's yard-measure applied to his back at the moment, in the fashion described in "Don Quixote," would be the utmost measure of correction which would not be cruel; and although he could not distinguish a spaniel from other dogs, it would teach him that to drop a heavy stone on any dog meant a painful sensation to be suffered by himself.

But there is another kind of insane ignorance with which the law is constantly brought into relation for which it is not easy to find the most appropriate name, although its character cannot fail to be understood by all who have had much practical acquaintance with the insane. It would be challenging the reproof of the lawyers to call it thoughtlessness, for they would naturally say that thoughtlessness is exactly the thing which it is their duty to prevent. I shall adopt the word *incomprehension* to connote that state of a man's mind produced by disease, who, knowing the nature of an act, is quite unable to comprehend its relations and consequences. It is the most common of all mental states in chronic insanity. A demented or an incoherent lunatic—one who has once had his reason and has lost it—will never be capable of committing an offence against the law, because he does not know the nature of the act, for, if sunk so low in mental decay as such a condition would indicate, he would be incapable of any intentional conduct: he would be one of those crouching dements whose vegetative life has survived their animal activities. But the mental state of the mischievous and dangerous dement is not of this class. If you arouse his attention, and demand from him what the effect will be of any of the mischievous doings to which he is addicted, he will tell it you truly enough, and he will often also admit that he knows it to be wrong. But the disease under which he suffers prevents him from considering the wrongfulness of his conduct at the time he does it. He has lost that quality of reason which looks before and after, and, yielding to irregular desires which are as much the result of disease as his loss of reason, he commits an infinite variety of unconsidered and unreasoned actions, more or less mischievous or dangerous to others or to himself. By far the larger part of the strange and irregular conduct of the insane both in and out of asylums is due to incomprehension or the want of forethought and appreciation of consequences, and it is exactly the same with their graver misdeeds in the legal offences they commit. A chronic dement may know perfectly well, and would tell you if you asked him, that to stab a keeper in the abdomen with a knife would kill him, and he would also tell you, if you asked, that such an act would be murder, and that men are hanged for murder; but, for all that, he might stab a keeper in the abdomen with a knife in order that he might have an explanation with the superintendent as to the portion of tobacco which has been given him, and when he hears that the keeper is dead he might say with perfect truth, "Oh dear! oh dear! I did not mean to kill him." The motive is insane, and the action is unreasoned, and the whole event is the result of dangerous lunacy, which has not been well enough guarded. Tell such a lunatic that he shall have no tobacco, and it is very probable that he might refrain; tell him that he shall be tried

and executed six months hence, and your words are as the idle wind. Such men are clearly more irresponsible than the higher grades of imbeciles whose reason does enable them to look before and after, though with feeble and dim mental sight. Such men, moreover, are liable to be under the dominion of furious passions, as much the result of disease as their loss of reason, so that the combination of this insane incomprehension with morbid emotional exaltation produces a degree of pathological uncontrol not exceeded in any other form of madness. We have already seen that epileptics sometimes commit offences automatically; more frequently they commit them under the influence of hallucination or delusion; but most frequently they commit them in this state of incomprehension combined with passion—the state of epileptic furor as it is called. It may be suggested that the fierce passion of the epileptic is enough to explain his conduct; but I think it is not so, and that the fury is blind, because the reason is obscured, and that to a great extent the epileptic rages because he does not comprehend what he is about; not that he is unconscious, but that he is unable to think. It may well be also that this fury is assisted by a diminution of physical sensibility, and especially by the loss of that muscular sense which measures effort. In the status epilepticus, the patient does not only lose consciousness of the injuries inflicted upon his own person from diminution of common sensibility, but in the deprivation of that muscular sense which conveys to the mind information as to the amount of effort exerted, he loses all guidance as to the degree of violence which he is inflicting on others. Thus, Drant beat the head of his victim with a wooden bar so that the blows sounded like an empty cask being beaten, and he also said, no doubt with truth, "Oh, dear! I did not mean to kill him. I am very sorry." The epileptic overwhelms his victim, and thrice he slays the slain, and sometimes he kills several persons in his blind, inconsiderate fury. This is the mental state which Jules Falret describes in his important monograph on "L'Etat Mental des Epileptiques," as preceding and continuing during the violent act. "I do not absolutely deny," says he "the existence of the instantaneous access of fury of short duration, but I maintain that such facts are happily most rare; and that almost always, if not always, the access of mental trouble is more prolonged and more intense. The attentive observer will, in fact, see that both before and during the violent conduct there is a notable obscuration of the intelligence and a general confusion of the ideas, during which the epileptic does not rightly appreciate either that which is passing within himself or around him. There exists, in a word, a group of symptoms, physical and moral, which enable one to assign to this transitory trouble of the intelligence the character of disease, independently of the act which is the especial object of the examination." But it is not to epileptics alone, but to all lunatics, excepting those who are influenced purely by delusion, that this explanation of the mental state under the term of incomprehension applies; and indeed it applies also to many lunatics who are to a certain extent under the influence of delusion; for I wish to be very explicit upon this point, that I disclaim any intention to offer a definite classification of the states of mind of insane offenders. I am too well aware of the constant intermingling of insane mental conditions to attempt such a hopeless task, and I shall be well content if I succeed only in unravelling some well-marked threads for guidance in the intricate mazes of our subject.

One source or phase of incomprehension is morbid inattention, the result of which is manifested in that well-known mental state which is called Incoherence, the strict meaning of which is incoherence of language, the utterance of words and sentences which have no relation to each other, showing that the thoughts themselves do not follow each other in any intelligible sequence. The main factor of this interesting condition is no doubt the loss of the power of attention. The mind rambles in seeming inconsecutiveness, no impression of idea being deep enough to carry on the mental movement in the same tract, or at least in any tract which can be detected by an observer, for I think there is a necessary sequence even in the maddest thoughts. It is probable, according to my observation, that there are two distinct forms of incoherence, one which is allied to aphasia, and another simply due to the decay of the faculty of attention. The most incoherent patient I ever had under my care was a splendid chess-player. This gentleman's lunacy dated from a blow on the head, and it is very possible that injury of Broca's convolution may have been the cause of his incoherence, a view which seems to be supported by the fact that he has now been insane seventeen years without any marked deterioration from his early state, while the course of incoherence from dementia is progressive. But from whatever cause it may arise, incoherence marks a phase of incomprehension, and prevents the sufferer from using his reason so as to know the consequences of his conduct.

I am happy to be able to bring my pathological views regarding the nature of insane ignorance into relation with the law by a reference to a most able paper which I have met with while writing these pages. This paper, which was read by Sir Fitzjames Stephen before the Juridical Society in June, 1855, had for its title "The policy of maintaining the Limits at present imposed by Law on the Criminal Responsibility of Madmen," and surely the present law was never defended with more force and acumen. We have seen how greatly the learned author has changed his opinions in the direction which medical science has indicated. But it has not been to point out this change which has induced me to refer to this remarkable essay. It is rather to point out the enlightened view which at that early date Sir Fitzjames Stephen took of the law as it stands, and to support my own opinions as to the ignorance of the insane by his authority. If the interpretation of the law which I am about to quote had been generally accepted by the judicature, there would perhaps have been little need for the attempt which I have been making to explain the modes and varieties of insane ignorance; but I have read many judicial charges in which the exposition of the law has been, I will not say opposed to, but certainly quite incommensurate with the facts I have endeavoured to explain and the principles of the juridical essayist, who says: "A distinction, I think, obtains between what is merely illegal and what is wrong. A man may be said to act illegally who does some act which violates the letter of the law. If he acts illegally, knowing but disregarding the reasons which induced the legislator to make the law, he does wrong. ..... Thus, if a man had just a sufficient glimmer of reason left to remember as a fact that people were hanged for murder, but not enough to know the circumstances connected with murder which make it criminal—namely, the distress and insecurity which it causes,—I think that he might well be said to be disabled by disease from knowing that murder was wrong. Upon any theory of morality whatever, the circumstances which surround an act give that act its moral character, and the ability to distinguish enough of these to be able to appreciate the reasons of the law in forbidding the act is surely a very different thing from the vestiges of memory which would suggest that the act was forbidden. I should be inclined to think that the following would be very nearly equivalent to the ordinary question proposed to them (the jury): Was the prisoner prevented by mental disease from appreciating the reasons for which the law has forbidden the crime of which he is accused, or from applying them to his own case?"

Another distinct pathological state of mind is *Hallucination and Delusion*. Hallucination alone, indeed, is not a state of the mind, but a state of a sense or senses. The seat of it may be in the external organ or in the sensory ganglion, for I have known a blind man have frightful hallucinations of vision. When, however, the false sense is believed to be true, a mental state arises which it is convenient to consider as delusional, although no doubt a distinction may fairly be drawn between delusions with and without hallucinations. In my first lecture I have referred to the difference of authoritative opinion as to the bearing of delusion on irresponsibility, and my own adhesion to the views of the Lord Chief Justice that "the mere existence of delusion ought not to affect the decision as to the power of self-control, unless the nature of the delusion were such as would legitimately lead to the inference that the power of self-control was wanting."

The arguments opposed to this opinion by the codifier in support of his proposal to shift the burden of proof as to responsibility when the existence of delusion has been established, seem to me inadequate. He says that if you have a specific definite delusion, such as that of a man thinking that his hand is made of glass, "it shows that the mind is so deeply disordered in all kinds of ways that you cannot draw the inference that there was an intention to kill." The example seems unfortunate, for of all delusions these hypochondriacal ones appear least to affect the power of self-control, and the particular one selected, which comes from Van Swieten, is, curiously enough, an instance of the

little hold which such delusions have upon the conduct. It was the man's legs, however, which he thought were made of glass. The maid-servant having thumped her master's legs with a log of wood, he jumped up from his seat in a passion, although he had not stood for a long time, from the fear of breaking his fragile supports. He was delighted to find that he could stand, and was cured. It is quite true that, in a large proportion of instances, "directly you get a definite delusion set up, the process of the mind is vitiated as well as the mere result," but the difficulty must arise of determining which are these instances, for it certainly is not so in all cases of delusion and in all stages of their formation, for delusions are formed gradually and disappear gradually, so that degree is an element of delusional as of all other insane mental states.

The difficulty of applying the test of delusion was well illustrated in the much-debated case of Luigi Buranelli, who was executed for the murder of Joseph Latham in 1855. Buranelli had suffered from fistula in ano, which had been cured by operation, leaving, however, some little callus. The delusion was that the disease still existed, that it communicated with his bladder, and that his bed was soaked with urine. He, however, had said nothing about it to the people with whom he lived, nor to the woman with whom he cohabited, and Drs. Sutherland and Mayo could find no trace of it when they examined him. The undoubted motive of the murder was jealousy and anger excited by natural causes, but I do not see, if the burden of proof were shifted, by what means it could have been demonstrated that Buranelli did not retain his delusion, and that his "mental processes were not vitiated" thereby. I see many reasons for the opinion that it is unwise to rely much upon the proof of delusion as the test of insanity. Some great lawyers have done so, notably Erskine and Cockburn, but it was when they were acting as advocates and not as judges, and in cases in which they could well rely upon the staff which they had chosen to grasp, for in neither Hadfield nor in M'Naughten was there any doubt of the existence of delusion, nor that it had resulted in the offence. But, in the first place, delusion is the most difficult of all mental states to detect, and if the opinion should be accepted that it is the best test of insanity, those in whom it cannot be detected will be likely to meet with an unfair estimate of their mental condition. Many criminal lunatics have been acquitted whose delusions have not been discovered until after their trial, and I fear some have been condemned whose delusions have never been discovered at all. In the second place, delusion is more easily simulated than any other insane mental state. Dr. David Nicholson tells us that it is quite common for convicts to simulate delusion in prison, and I certainly know of no method by which it can be determined whether a murderer is telling the truth or not if he says that a heavenly voice told him to do it, or that his victim had ruined or poisoned him, except by comparing his statement with his history and the presence or absence of other symptoms of insanity. And, thirdly, it must be remembered that, although many delusions have their character branded upon the front as it were, and are obviously either lies or delusions, there are many other delusions of quite a different colour. There are delusions of impossibilities, delusions of possibilities, and delusions of probabilities. How is anyone to recognise the last as delusions unless by comparing them with all the facts and history of the case? When such a delusion has led to a course of conduct insanely consistent with, and culminating in the overt act, and when its existence is supported by other evidence of the development and existence of mental disease, then its bearing upon irresponsibility is of the weightiest. It was only in this manner that I once succeeded in convincing Lord Wensleydale and a jury that a man had killed his wife under the delusion that she was unfaithful to him. This man was acquitted, and turned out to be an unmistakable lunatic with hallucinations of sight and hearing. But it has always seemed to me that the law as it stands was fortunately strained towards mercy in his case, as he certainly had not killed his wife in the act of adultery, which alone would have exonerated him if he had been sane and his delusion true. I have recently seen exactly parallel evidence to that given in this case, with the exception of the homicide, rejected by a special jury at an inquisition.

A fourth difficulty in applying the test of delusion to irresponsibility is the great variation which is found to exist in the degree of belief which is accorded by the sufferer to insane opinions. As a rule, delusions do not arise suddenly in the mind in their full strength. They increase gradually from small beginnings, until they abrogate all power of self-control; then, not unfrequently, they gradually decline. We see many lunatics changing their delusions frequently, so that the delusion which yesterday was strong to-day is weak. This fact, of the most common experience, is confirmed by the expression of its opposite; for we say of a delusion which does not so change that it is a fixed delusion or a fixed idea. Other persons we find who believe, or do not believe, according to the state of the stomach or the liver, or the company they are in, or their temper,—the force of whose delusions is more variable than that of the wind.

Delusion, therefore, cannot rightly, I think, be considered as better or stronger evidence of irresponsibility than other mental states—than incomprehension, for instance; with which, however, its very frequent combination so greatly facilitates our task of diagnosis. And I can only repeat the doctrine, whose importance I desire to enforce by reiteration, that it is the state of the whole mind, judged by all its manifestations, upon which alone the possession or the loss of self-control, and the responsibility or the irresponsibility of the individual, ought to be decided.

In his most able treatise on the Medical Jurisprudence of Insanity, Mr. Balfour Brown suggests that "delusion should be taken into consideration in reference to the question of malice and provocation, just as drunkenness, which is not a defence on a criminal charge, may be taken into account in considering the intention with which the act is done."[1] With this opinion I cannot concur, if it were only upon the ground that malice and provocation themselves are so often within the mind of a lunatic who is unquestionably irresponsible.

Passion, or desire passing into that form of wishing which is called will—that is to say, wishing combined with effort,—is an essential element in all conduct which can can least of all be ignored in that of the insane. It is the force which drives the machine, either in the ways of peace or to wreck and disaster. I could wish that I had time to dwell upon the manner and degree in which disease influences the affective faculties of mind, or rather upon the degree alone, for it appears to me that desire varies only in this, in the more or less of its intensity, and that its object is chosen by the intellectual and not the affective faculties. There is always a ground for passion, though there may be no reason for it; as Shylock says—

> "So I can give no reason, nor I will not,
> More than a lodged hate and a certain loathing."

That passion and desire are exalted and intensified by disease affecting the mind is a fact which neither jurists nor physicians can afford to overlook, for it forms a most important element in the state of the whole mind upon which irresponsibility depends, which cannot be ignored without the risk, nay the certainty, of error and injustice. The fury of the epileptic is as unlike his normal and natural disposition as it is possible for two states of a man to be in health and disease. And if the abnormal state of passion and desire, the result of disease, be a most important factor in the whole state of mind which deprives a man of his self-control, how can we refuse to give it consideration and weight in estimating his responsibility? But I refuse to believe that a man can be mad from change of the affective faculties alone. I see no grounds for it in science, and no reason for it in philosophy; and although truth disregards consequences, I see every reason against it in the social mischief which would be wrought by such an admission.

Taking up *The Times* while I am writing, I observe a quotation from the *Nation* newspaper upon Lord Leitrim's murder, in which the writer says: "There are such things as the fierce logic and the wild justice of revenge. The law puts some restraint upon the exercise of that wild justice, and religion forbids it; but *passion mounting up to madness* will sometimes overleap these barriers, and lead to terrible results." This is an example of the application to which the theory of passion mounting up to madness may be applied; and there is no crime, no cruelty, no social horror, which might not be thus vindicated if the common sense of mankind did not repudiate the foolish and wicked doctrine, and if the wholesome restraints of the law were removed.

[1] Second edition, p. 16.

HEALTH OF DUBLIN.—During the quarter ending 30th March the deaths amounted to 2460, or 31·3 per 1000. A large increase took place in the fatal cases of small-pox and whooping-cough, and a corresponding decrease in the deaths from measles on that of the preceding quarter.

ON THE SURGICAL TREATMENT OF INTESTINAL OBSTRUCTION, WITH TWO CASES OF ENTEROTOMY.*

BY THOMAS BRYANT, F.R.C.S.,
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IN cases of acute or chronic intestinal obstruction, when the physician's art has failed to give relief, the surgeon's aid is occasionally required, and it would be well for the medical mind to recognise the fact that in a large proportion of instances this aid is sought at too late a period—that is, when the patient's powers have become so exhausted as to exclude all hope of a successful issue being obtained by any treatment, or when the involved tissues have undergone such changes from peritoneal complications as to forbid any reasonable expectation of the competency of nature's reparative powers to effect a cure; as cases of *acute* intestinal obstruction, like those of strangulated hernia, require prompt and active treatment if they are to be successful, while those of chronic obstruction require a no less decided line of action.

It must be admitted, however, that there is no class of cases which claims for diagnostic purposes more thought and judgment, the difficulties of diagnosis as to the cause of the obstruction being sometimes great. The question of operative interference has consequently to be decided upon uncertain grounds. Yet, when the diagnosis is clear, and the nature of the case decided, delay is dangerous, and a want of courage to act upon the diagnosis is in the surgeon criminal. The question of diagnosis is consequently all-important, and will first claim our attention.

Diagnosis of the cause of intestinal obstruction.—From a clinical point of view, cases of intestinal obstruction may be divided into the *acute* and *chronic*. The *acute* including strangulation of a portion of the bowel from internal hernia, omental, mesenteric, peritoneal or fœtal bands, or twists of the intestine (volvulus). The *chronic*, inflammatory or cancerous strictures of the large or small intestine; the occlusion of the bowel from the mechanical pressure of tumours; adhesions of the intestines from chronic inflammatory peritoneal changes; and last, but not least, the impaction of fæces. Intussusceptions belong to both divisions, because when *strangulated* they may give rise to acute, and, when *incarcerated*, to chronic symptoms, although the symptoms in their onset are always sudden. Perityphlitis and acute peritonitis, due to perforation of the bowel, may also simulate the acute form.

I should like to add that in all cases of intestinal obstruction the diagnosis should be made upon the principle of exclusion, the practitioner coming to a conclusion by first running over every possible cause and eliminating each seriatim, and subsequently weighing the points in favour of the probable cause. The possibility of the symptoms being due to a strangulated or obstructed external hernia should always be carefully investigated.

With respect to the frequency of these different forms of obstruction I will draw your attention to the following facts, which have been compiled from the post-mortem records of Guy's Hospital of the last twenty-two years, by Dr. Hilton Fagge and my dresser, Mr. Russell.

CAUSES OF INTESTINAL OBSTRUCTION, EXCLUDING HERNIA.

Guy's Cases					From Papers by Coupland & Morris (Brit. Med. Jour., Jan. 26, 1878). Middlesex Cases.		Pathological Society.		General Total.
					28 Large Intestines, 3 Small.				
33	Acute obstruction ...	1 Internal hernia.							
		7 Twists (volvulus).							
		25 Bands ...	14 Lymph.						
			6 Diverticula.						
			2 Appendix cæci.						
			2 to neck of hernial sac.						
			1 from pedicle of ovarian tumour.						
76	Chronic obstruction ...	3 Fæcal impaction.							
		3 Mechanical pressure of tumours.							
		47 Stricture ...	2 Small intestine						
			45 Large „	33 Rectum and sigmoid flexure	24	...	21	=	78
				7 Transverse colon with hepatic and splenic flexures	3	...	9	=	19
				5 Cæcum or ileo-cæcal	1	...	1	=	7
									104
		23 Matting together of intestinal coils from peritoneal and cancerous disease. (Contractions.)							
15	Intussusceptions... ...	2 Rectal.							
		7 Ileo-cæcal.							
		6 Small intestine.							
124									

From the above table we learn that 124 deaths have taken place. Of these, 33 were the result of acute internal strangulation from bands, twists, and internal hernia, 76 from chronic obstruction, and 15 from intussusception.

Out of the 76 chronic cases 3 were due to the impaction of fæces, 3 to the mechanical obstruction caused by tumours, 23 to the matting together of the intestinal coils from inflammatory or cancerous disease of the peritoneum or mesentery, and 47 to stricture of the intestine, 45 large and 2 small. Of the 45 cases of stricture of the large, the seat of the disease was in the rectum and sigmoid flexure in three-fourths, and in the transverse colon in the majority of the remainder, it being exceptional to meet with stricture in the cæcum or ascending colon. These latter facts are in every point confirmed by a most interesting analysis of cases made by Dr. Sidney Coupland, and my friend Mr. Henry Morris, of the Middlesex Hospital, as shown in the table. It is hardly necessary to point out the important bearing these pathological facts have upon practice; it will, however, be made clearer as we proceed.

Acute strangulation of the bowel, whether from an internal hernia, twist (volvulus), or a fæcal or peritoneal lymph band, may take place at any period of life, and the symptoms to which it gives rise are those of an acute strangulated hernia—viz., sudden and definite onset of the illness in a healthy subject, severe paroxysmal central abdominal pain, attended by sickness and more or less collapse, constipation, inability to pass wind downwards, and hiccough, occasionally, also, scanty urine, or even its suppression, and visible coils of distended bowels. There will, however, be no abdominal tumour, no tenesmus, and no hæmorrhage from the bowel.

When these symptoms appear, it may be difficult, if not impossible, to diagnose the exact cause of the strangulation, whether from internal hernia, twist of the bowel, strangulation by a lymph band stretching across the gut, connected with a diverticulum or cæcal appendix; although when the case is associated with an old hernia the probability of the cause being a band is enhanced, but it is not difficult to arrive at the conclusion that a strangulated bowel exists, and that unless the cause of the strangulation is removed death must take place. At the same time it will be recognised that the hope of a cure by natural processes is very meagre, and if I estimate that hope as being about on a par with that which the surgeon can entertain in a case of ordinary strangulated hernia when left to itself, I shall probably be about the mark, since cases of strangulated hernia do occasionally go up of themselves when all surgical efforts have failed to reduce

* Read before the Medical Society of London, April 29th, 1878.

them less than herniotomy, and cases of internal strangulation, from whatever cause, do occasionally free themselves. Nevertheless no prudent surgeon, upon the strength of these exceptional occurrences, would willingly leave a case of external strangulated hernia to itself with the vague chance of its self-reduction, and I believe that no prudent surgeon ought to leave a case of internal hernia or strangulation unrelieved with the same almost forlorn hope, because, granting that the diagnosis of the case can be made, by no medicine, no manipulation, no expectant treatment, can the mechanical obstruction be overcome, and under such circumstances a fatal termination must be anticipated. Opium may relieve pain, mask symptoms, and give rise to the pleasing delusion that all is doing well in cases of internal strangulation, as it is well known it does in others of external hernia; but, in the one case as in the other, it does no more; it does not do the one thing needful—relieve the mechanical obstruction and give to the strangulated intestine, and with it the patient, a chance of life.

In external hernia the only recognised efficient treatment is herniotomy at an early period of the case, before the bowel is irreparably damaged, and I submit that in internal hernia or its equivalent under the same conditions, and with the same object, the only sound practice is "laparotomy."

The operation of ovariotomy has proved to us that the exposure and manipulation of healthy bowel is not of itself a fatal measure, and there is good reason to believe that in the cases now under consideration a good result might often be secured if the operation were performed before a fatal peritonitis has set in, or the strangulated bowel has been injured past recovery. At any rate, as matters now stand, a recovery by medical treatment from an internal strangulation is a matter of wonder, and it would be well, as all collateral experience indicates, that a bolder practice should be employed. If we appeal to pathology for facts, and it is only there, unfortunately, that we can appeal to, we receive ample evidence. Dr. Fagge, in his able article in Guy's Hospital Reports for 1868, tells us "that there might in many of the cases he was analysing have been no little difficulty in finding a band among the distended coils, but I regard the facts derivable from our post-mortem records as indicating no insurmountable obstacles to the success of an exploratory operation in the great majority of the cases of true internal strangulation which are to be found in these records." And Dr. Brinton, in his able analysis of 600 cases, points to the same conclusion. Under these circumstances, I therefore feel bound to express my conviction that, on the diagnosis of an internal strangulation, from whatever cause, being made (and from the symptoms described the task is not a difficult one), the operation of laparotomy should be performed. But this operation is not to be adopted as a *dernier ressort* more than herniotomy, but should be carried out as early in the progress of the case as the diagnosis will justify. Under these circumstances, I feel convinced that in another decade I shall not be able to point, as I have done, to thirty-three fatal cases of the kind with but one success—a case which took place in my own practice, and that I recorded in the Medico-Chirurgical Transactions for 1867, but that I shall be able to point to many, not only in my own practice, but in that of others.

And here I should like to add that this suggestion of "laparotomy," in cases of abdominal obstruction, was forcibly brought before this Society by a former president, forty years ago, in the following remarks upon the treatment of a case of internal strangulation by a band. "The nature, exact seat of obstruction, and the probability of its being in our power to afford relief, even when parts are exposed to our view, must be, to a certain extent, doubtful; but notwithstanding this, it appears to me, there are certain indications which may be usefully borne in mind, although there may be cases which give rise to circumstances beyond our control, and, from their nature, must tend to discourage. Is it so, however, in the case of invagination of the intestine, in mesenteric and mesocolic hernia, and in cases analogous to the one of band which has been just related? Is it not in our power to discriminate to a certain extent, to form a tolerably clear diagnosis as to their character and seat? And if so, should we not be justified, under circumstances of such utter hopelessness, in attempting relief, even by the bold step of opening the abdominal cavity?" "The state of parts which the preparation presented to the Society, and shown in this drawing, when first presented to my view," adds the author, "produced something like a feeling of deep regret, that a state of things so easily altered should have bid defiance to our efforts, and that the life of a young, and otherwise healthy, patient should have been thus sacrificed."

These remarks, Sir, are so apposite, and so well express what many modern surgeons must have felt under similar circumstances, that I feel sure I shall be pardoned for having brought them before you, although I trust that in something less than another forty years the practice which was then suggested will become the rule. I must add, however, that this quotation is from a paper of my father's, read in 1838, and published in the Transactions of the Medical Society of London for 1846.

(To be continued.)

ON A CASE OF ANÆMIA,

OBSERVED WITH THE HÆMACYTOMETER.

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ONE of the most important practical uses of the hæmacytometer[1] is to observe the effect of hæmatinic remedies by a more accurate method than that afforded by the observation of the colour of the skin and mucous membranes. An improvement in the blood may be detected by an increase in the number of corpuscles before there is any distinct improvement in the patient's appearance. It was so in the following case, which presents the variations in the number of corpuscles in the blood during recovery from a severe degree of anæmia. The numeration of the corpuscles was made on a few occasions by myself, but on most, with much care, by Mr. W. S. Tuke, physician's-assistant in University College Hospital.

The patient was a girl aged eighteen, who presented herself among my out-patients on November 28th, 1877, with extreme pallor. She sought relief on account of shortness of breath, which interfered seriously with her occupation, that of chambermaid at an hotel. She had lived abroad, in India and Gibraltar, up to fifteen years of age, but had not suffered from any illness. At fifteen the catamenia commenced, and since that time she had become pale. During the last three months the catamenia had been absent, and she had suffered from swelling of the feet and palpitation of the heart. She was a tall girl, fairly well-nourished, but extremely pale. The cheeks were devoid of colour, the lips almost as pallid as the cheeks. The palpebral conjunctiva and gums were yellowish, rather than pink. The skin had a slight greenish-yellow tint, not so marked, however, as is sometimes seen. There was no œdema of the feet. Occasional headache and giddiness on exertion, with noises in the ears, were complained of. There was no enlargement of spleen or glands. The lungs were healthy, with the exception of harsh breathing at one apex. The cardiac dulness was increased (six inches from side to side), the impulse diffused, and unduly strong. A loud systolic murmur was audible over both sides of the heart, between the right parasternal and left anterior axillary lines, having its maximum at the inner end of the fourth cartilage, less loud in second than in third interspace, heard well at aortic and pulmonary cartilages, not heard at mid-axilla or back. The pulse (108) was markedly incompressible. An ophthalmoscopic examination showed the choroid to be strikingly pale; the retinal arteries lighter in tint than normal, with a broad reflection from them; the retinal veins presented relatively greater pallor than the arteries, their tint being scarcely darker than that usually presented by the latter.

Microscopical examination of the blood showed the red corpuscles to be, on the whole, well coloured, although some were smaller than the average. They did not run together so readily as in health. The corpuscles were found, on numeration, to be greatly diminished in number, being reduced to 26 per cent. of the normal, or about 1 in place of 4 (1,290,000 per cubic millimetre instead of 5,000,000). There

[1] For a description of the instrument, see THE LANCET for Dec. 7th, 1877.

was a slight relative increase in the white corpuscles, about a dozen in the field of the microscope. On enumeration, there was found to be about one white to 150 red, and when the diminution in the red was allowed for, the white were in normal quantity.

The patient was admitted into the hospital, and placed on an albuminous diet—spoon diet, with strong beef-tea and four eggs daily. She was kept at rest, and ordered thirty minims of solution of chloroxide of iron three times a day.

A few days after admission she had one or two attacks of vomiting, induced apparently by getting up. Her temperature was normal, but her pulse continued frequent, being uniformly 108. A week after admission, on Dec. 5th, the corpuscles were again counted. They were found to have improved from 26 to 40 per cent. of the normal (2,000,000 per cubic millimetre). There was no attempt at forming rouleaux. Examined immediately after being drawn, they presented crenated outlines, and many had a granular appearance, as if breaking up. They varied much in size, some being very minute. There was a good deal of granular material. The white corpuscles were no longer in relative excess.

Two days later, Dec 7th, a further improvement of 9 per cent. was observed—to 49 per cent. (2,480,000 per cub. mm.), —and an improvement in the patient's aspect was very perceptible. The pulse fell in frequency by about twenty beats, varying now between eighty and ninety.

On Dec. 9th the corpuscles were again counted, and were found to be the same in number as on the previous examination. The appearance of the red discs had greatly improved; they no longer presented crenated outlines and granular contents, but were smooth, clear, running together into rouleaux. There were no more granular masses and no excess of white corpuscles.

On Dec. 15th the corpuscles were found to have risen to 56 per cent. of the normal (2,800,000 per cubic millimetre). The improvement in aspect was marked, the colour of lips and cheeks returning. Vomiting still occurred on getting up. There was, however, no evidence of dyspeptic disturbance, and patient had gained six pounds in weight since admission.

On Dec. 22nd the corpuscles had risen to 60 per cent., and on Dec. 25th they were also 60 per cent. On the 29th they had risen to 70 per cent., and on Jan. 1st. to 76 per cent. (3,800,000 per cubic millimetre). On Jan. 5th, however, it was found that the corpuscles had fallen to 66 per cent., without any cause for the fall being at first obvious. On inquiry, however, it was found that the catamenia had commenced on the preceding day, the first time for four months. The menses continued for six days, ceasing on the 9th. On the 10th the corpuscles had risen to 72 per cent., and on the 12th to 75 per cent. She had now a good colour, and could walk about freely without sickness or dyspnœa. She was discharged from the hospital, having taken solution of chloroxide of iron throughout.

A week later she came to the hospital looking paler, and it was found that she had been suffering from gastric pain, due probably to change in diet, which had interfered with her taking food. The corpuscles had fallen to 58 per cent. Citrate of iron and quinine was ordered after meals, and a more careful diet enjoined. She went to Brighton for the following week, and on her return on Jan. 23rd had more than recovered the lost ground, the corpuscles having risen to 86 per cent. (see chart), with a corresponding

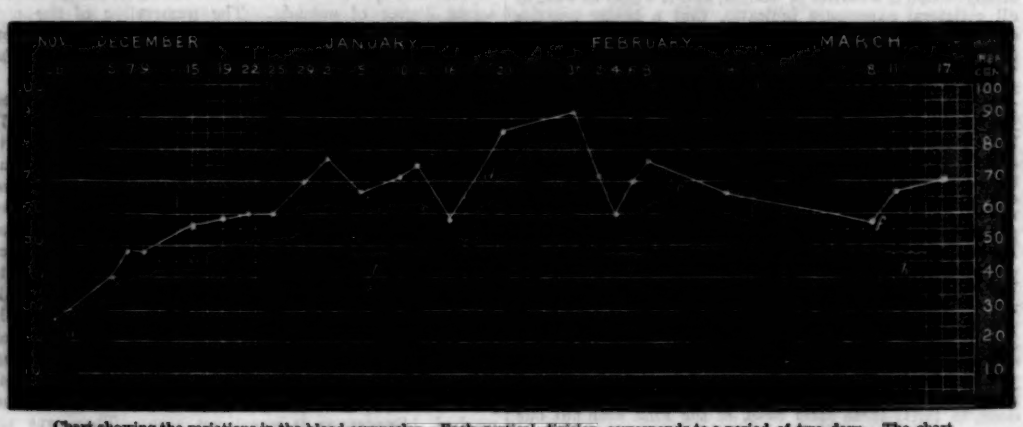

Chart showing the variations in the blood-corpuscles. Each vertical division corresponds to a period of two days. The chart shows the number of corpuscles in two squares of the hæmacytometer (in ·00002 cubic millimetre of blood)—i.e., the percentage proportion to health = 100.[2] *a*, Iron commenced. *b b b*, Catamenial periods. *c*, Gastric pain. *d*, Brighton. *e*, Iron omitted. *f*, Iron resumed.

improvement in her appearance. On Jan. 30th the corpuscles had risen still further to 93 per cent. of the normal (4,650,000 per cubic millimetre). As her next menstrual period was due in a few days, she came to the hospital two days later, on Feb. 1st. It was found that the corpuscles had fallen to 72 per cent. On the evening of the same day she began to menstruate. Two days later, on Feb. 4th, the menstrual discharge being abundant, the corpuscles had fallen further to 60 per cent. On Feb. 6th, however, the catamenia continuing, although slighter, the corpuscles had risen to 70 per cent., and on the 8th, the day the discharge ceased, they had risen further to 76 per cent. She then ceased taking the iron, and resumed her work as chambermaid at an hotel. Observations could therefore be made less frequently. Ten days later, Feb. 18th, the corpuscles had fallen to 66 per cent., and on March 8th they were only 59 per cent. Iron was recommenced. This was, however, the day before the commencement of the catamenia. Three days later, in the middle of the "period," the corpuscles had risen to 66 per cent. A week later, on the 17th inst., the catamenia having ceased, and the iron being continued, the corpuscles had again reached 70 per cent.

Remarks.—Several points of some interest are illustrated by the above case. It will be sufficient to direct attention to them very briefly.

1. It is published, as stated already, mainly as an illustration of the assistance the hæmacytometer affords in the accurate observation and record of the progress of the blood state. Allowing for a certain amount of unavoidable error in such an operation as the numeration of blood-corpuscles, the course of the curve in the above chart, taken in conjunction with the facts of the case above given, is, I think, evidence of its practical value.

2. The principles of the treatment were three: (*a*) absolute rest; (*b*) a large amount of nitrogenous food; and (*c*) iron.

(*a*) Absolute rest. The patient sought relief, as anæmic patients often do, not on account of pallor and weakness, but on account of shortness of breath on any exertion, unnoticed at rest. This means, of course, that the corpuscles could convey from the lungs enough oxygen to prevent the consciousness of "anoxæmia" on rest, but not enough to prevent it if muscular action used up some of the oxygen. But with this deficiency of the supply of oxygen

[2] The dilution, and the divisions in the instrument, are so arranged that, with blood which contains the normal average of 5,000,000 corpuscles per cubic millimetre, two of the squares will contain, on an average, 100 corpuscles.

to the tissues one of the gravest consequences of the anæmia has been, with some reason, associated—the granular degeneration of protoplasm, seen conspicuously in the muscular fibres of the heart, but affecting also all the protoplasm of the body. If this degeneration, as commonly believed, depends on the imperfect supply of oxygen to the tissues consequent on the deficiency in the number of the oxygen-carrying corpuscles, muscular exertion, by increasing the consumption of oxygen, must increase the tissue-deficiency. Absolute rest increases, therefore, the tissue-supply, and where the diminution of the corpuscles is so great as in this case, the increase in the tissue-supply of oxygen thus afforded is of the highest moment. The corpuscles were not far from the lowest point at which the processes of the body can go on. A reduction of another 10 per cent. would probably have placed the patient in immediate danger, from the effects of the tissue-deficiency of oxygen.[2] It is to be remembered also that whatever be the origin of the red corpuscles, they must arise from and in active protoplasm, which will share the degenerative effect of the deficient supply of oxygen, and so, by increasing the relative tissue-supply, the development of the corpuscles in number and degree will be assisted. It was probably in part the effect of the anoxæmia on the developing protoplasm, which was shown by the altered form and granular appearance of the corpuscles of the blood immediately after admission.

(*b*) Nitrogenous food. Whatever be the nature of the tissue-degeneration anæmia causes, it is clearly due to defective nutrition of the protein tissues of the body, and by an abundant supply of protein material one essential element for the nutrition of those tissues may be secured. Such food was given as would tax as little as possible the digestive powers, since it must be remembered that the cells and fibres of the gastro-intestinal tract, on the function of which digestion so largely depends, will suffer the same degeneration, and be inadequate for heavy duty.

(*c*) Iron. It is intelligible that iron should increase the colour of red corpuscles; it is less easy to understand how it increases their number, although this is one of its best-established effects, of which the above case is a striking illustration. Iron must act as a direct stimulant to the process by which the red corpuscles are produced. According to the view almost universally received, the red corpuscles are produced by the transformation of leucocytes; the iron must act by increasing the formation of those cells, perhaps also by favouring their transformation. In this patient the white corpuscles, although at first in a slight relative excess, were really in an absolute deficiency. The preparation of iron used was the chloroxide, a nearly neutral form, selected on account of the evidence of gastric irritability. It consists of a solution of oxide of iron (obtained by precipitate from the perchloride) in the ordinary solution of perchloride of iron.

3. On each occasion menstruation was attended by a considerable diminution in the number of red corpuscles. It marked chiefly the first few days of the menstrual period, a rise occurring during the latter part. In one instance at least the fall in the corpuscles distinctly preceded the establishment of the menstrual flow—a fact which is in harmony with the pale appearance sometimes observable before menstruation actually begins. This would suggest that the diminution in the number of the corpuscles is not due merely to their loss in the flow, but rather to an associated interference with the process of blood-formation.

4. The cardiac condition in this case is of great interest, and was the subject of a number of very careful observations, but to describe these at length would be foreign to the immediate purpose for which the case is now narrated. The most conspicuous disturbance was the over-action of the heart in frequency as well as in force. The pulse was incompressible, partly perhaps from the frequency of the heart's action. The rate was uniformly 108 per minute (without fever, excitement, alcohol, or anything to cause it) as long as the corpuscles were below 40 per cent. of the normal, and the attainment of this percentage was accompanied by a sudden fall of 20 beats. The lower rate was maintained for several weeks. No cardiac sedative was administered.

Queen Anne-street, W.

[2] In a case of death from hæmorrhage I found that just before death the corpuscles had fallen to 9 per cent. Death occurred rapidly. It is doubtful whether life can be carried on for long with less than 15 per cent.

THE INFECTIOUS NATURE OF YELLOW FEVER.

BY JAMES J. L. DONNET, M.D.,
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IN the article, "Is Yellow Fever Infectious?" which appeared in THE LANCET of the 27th October last, Dr. Cargill, of Jamaica, has opened a subject of much interest to the medical world at large, and one of vital moment to the inhabitants of the West Indies.

Since the discovery of America by Columbus, the question of the infectious nature of yellow fever has agitated the medical mind, and much diversity of opinion has obtained regarding it, many names of authority being ranged on the side of infection, whilst as many and as authoritative are found on that of its non-infectious nature. The experience which I have had respecting the various forms of fevers observed in tropical and warm climates (an experience based upon the many instances of these fevers which have fallen under my observation) has forced me to the conclusion that yellow fever proper is a fever of a highly infectious nature, varying in intensity with the degree of virulence which accompanies it, and with the cosmic and atmospheric influences reigning at the time; and I cannot consider the want of unity of opinion which obtains regarding its infectious properties, otherwise than as a misconception arising from the seeming analogy which links one form of fever with the other, and which, as a blinding cloud, has shrouded the true nature of the disease and has forced the observers into inferences drawn from erroneous premises.

The shades which separate the symptoms of one fever from those of another, in warm climates, are sometimes of such gentle gradation that *primâ facie* they seem to belong to one and the same disease, and this more especially refers to the yellow and remittent class of fevers, between which so slight is sometimes the distinction, that remittent has frequently been considered and classified as true yellow fever; for in the prominent symptoms which present in both yellow and remittent fever a great similarity obtains: both take their origin in paludal soils, both in their course offer symptoms of so seemingly similar a nature, that the shades which differentiate them are so slight as to frequently escape the conscientious observer and cause him to fall into indefensible interpretations. But this apparent similarity vanishes on close and continuous inspection, for then essential and distinctive marks are observed, which stamp each with an individuality, and which characterise each as a separate disease, distinct in its essence and differing significantly one from the other. These differences may be summarised as follows:—

Yellow Fever.	*Remittent Fever.*
Is essentially of an infectious nature.	Is not of an infectious nature.
Only vigorous and young constitutions fall victims to it. Coloured population *less* liable than white.	All ages and constitutions are liable, and the weakest most so. Coloured population as liable as white.
Restricted to the yellow fever zone—namely, the delta of the Mississippi, and the adjoining coasts and islands.	Is to be found in all parts of the world where marshy soils prevail.
Is of a continued type; no remissions.	Remissions observed in the morning.
Rachialgia more pronounced in this fever than in any other, except small-pox.	Rachialgia slight.
Abstraction of blood not tolerated.	Abstraction of blood tolerated.
Albuminous urine the rule.	Albuminous urine the exception.
Liver affected.	Liver not affected.
Spleen not affected.	Spleen invariably affected.
Partial or total suppression of urine the rule.	Suppression of urine the exception.
Hæmorrhages from stomach in bad cases the rule.	Hæmorrhages from the stomach in bad cases the exception.

Yellow Fever.	*Remittent Fever.*
Quinine useless as a therapeutic agent.	Antagonistic power of quinine beyond the reach of question.
Death occurs on the fifth day.	Death never occurs before the seventh day.
Yellow fever never merges into intermittent.	Remittent merges into intermittent.
One attack affords an immunity from future ones.	One attack affords no immunity from future ones.
Immunity almost perfect after a three years' residence in the lowlands.	No immunity obtained by any length of residence.
Convalescence less protracted than in remittent fever.	Convalescence protracted.
Peculiar smell in yellow fever cases.	Not observable in remittent fever.

These distinctions are striking; yet there are many who hesitate in determining what the points of contact and divergence are which connect and separate the various forms of malarious disorders. From their having observed yellow fever to coexist with remittent, they believe that both remittent and yellow fever are due to one and the same cause; that upon a reciprocal action of various concurrent agents, and a varied mode of operation of the cause, depend the varied conditions which are observed; and they ask why should not the relation between the two conditions be one of direct causation? These inferences, however, are drawn from observations limited to the habitat of yellow fever, and consequently are not sufficiently cumulative to warrant their acceptance. For if yellow fever and remittent be the offspring of one and the same germ, then yellow fever should be found wheresoever remittent fever has existence; but yellow fever is unknown in the vast marshes at the deltas of the large rivers of the Old World, and in the many localities in which remittent fever luxuriates. This coincidence of the appearance of two disorders in one locality has likewise been noted by others. Sir James M'Grigor observed during the Peninsular war that when men were encamped by the side of some rivers, a part would fall subject to dysentery, whilst another would be attacked by ague.

Whilst doing duty as medical officer with the men of the Royal Marine Battalion, quartered at St. Jean d'Acre after the fall of that fortress, I observed that whilst a portion of them fell ill of dysentery, another succumbed to remittent fever. The same thing occurred to the men exposed to the baneful influences of the Gold Coast during the Ashantee campaign, for whilst some had fever of a remittent type, others suffered from malarious dysentery.

The advocates of the exclusive existence of one germ for the manifestation of two different diseases in one locality, allege such examples as the above in support of their theory; the poison, they say, acts variously according to the constitution and the influences reigning at the time. If we admit the theory that one cause alone is sufficient to produce different diseases as distinct in themselves as are yellow and remittent fever, we should then find ourselves in the position of being obliged to break down the barriers which now are generally admitted to divide scarlet fever from measles, yellow fever from plague, typhus fever from typhoid, rabies from hydrophobia, and to accept theories which are diametrically opposed to received opinions, and directly at issue with the facts and evidence which have been solved by accurate research and clinical observation. In the West Indies, simple continued fever and remittent fever may be found coexisting, whilst yellow fever is prevailing and doing its worst; but it does not follow, because different types of fever appear during the prevalence of a more severe one, such as yellow fever is, that any necessary causative connexion exists between them.

Whatsoever be the cause or whatsoever the germ which originates yellow fever, there is every reason to believe that it is essentially the cause or specific germ of yellow fever, differing *toto cœlo* from that which produces remittent fever or dysentery; and in the histories of the various epidemics of yellow fever which have occurred since the seventeenth century, whether described by a Ferreira da Rosa, a Simaõ da Cunha, a Chisholm, a Rush, a Blair, or a Louis, this fever is stamped with an individuality which prevents it from being mistaken for plague or remittent or other fever.

Wheresoever malarious diseases have appeared they have been characterised similarly, and although some shades of difference do obtain, as in all types of fever, these diseases have always been identical, in their essential symptoms, with those from whence they have sprung, and have preserved their individuality from ages most remote. The plague which is cradled in the delta of the Nile has always produced the symptoms of plague. Cholera, which is the child of the Sonderbunds of the Ganges, has always produced cholera. Yellow fever, which finds its birth in the delta of the Mississippi, invariably engenders yellow fever. Each has produced nothing more nor less than itself but in degree; and as Professor Tyndall, in his lectures at the Royal Institution, has said:—"As surely as a thistle was from a thistle seed, as surely as a fig comes from the fig, the grape from the grape, the thorn from the thorn, so surely does the typhoid fever virus increase and multiply into typhoid fever, the scarlatina virus into scarlet fever, the small-pox virus into small-pox." And so with yellow and remittent fever, each distinct in itself, each having a germ *sui generis*, a germ endowed with like and constant properties, indicated in its effects by special symptoms during life, and specific pathological lesions revealed by examination after death. Remittent fever clothed in similar symptoms reveals itself as remittent and never as yellow fever, whilst yellow fever assumes an individuality which stamps it as a specific disease, essentially infectious in its nature, distinct and separate from remittent.

Cheltenham.

A CASE OF FREQUENT REMARKABLY HIGH TEMPERATURES DURING AND AFTER CONVALESCENCE FROM ENTERIC FEVER.

BY HORATIO DONKIN, M.B. OXON.,

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THE subject of these remarks is a nurse at the East London Hospital for Children, aged nineteen, who came under my notice early in January of this year, suffering from enteric fever. She first took to her bed on Jan. 13th, having, however, had considerable diarrhœa for a week previously, and confessing to having felt very unwell since the beginning of the month. The diarrhœa continuing and a few rose spots still making their appearance, the temperature steadily rose from the morning of the 14th, till, on the 17th, there was a morning temperature of 105° and an evening one of 105·5°. On the 18th the morning registration showed 105·2°, while in the evening of that day a temperature of only 98·5° was noted in the axilla, a thermometer in the mouth shortly afterwards showing 100°. There was no obvious change in other symptoms with this fall, nor was there at any time evidence of danger independently of the height of the temperature. From the 19th to the 21st inclusive no lower temperature was remarked than 104°, the observations being made thrice daily; and on the evening of the 21st the temperature rose from 105° at 6 P.M. (about which point the maximum had previously been) to 109·4° at 8.30 P.M. (On the afternoon of this day, when I saw her between 4 and 5 o'clock, the patient appeared about at her worst, being somewhat prostrate and lying low down in the bed.) According to my instructions, should the temperature rise above 105°, she was put into a bath at 90°, to be gradually cooled to 60°. After ten minutes of the bath a thermometer in the mouth showed 97·6°, and the patient shivered. She was, however, kept in the bath for twenty-five minutes. After some violent shivering for about an hour, the temperature, which had been 96·8°, rose to 98·6°, and fluctuated through the night between 97·8° and 98·6°. The next morning the patient seemed in every respect better than on the previous afternoon. No diarrhœa occurred after this date, nor was any complaint made beyond that of more or less abdominal pain, which has occurred at intervals up to the present time. At the time of the high temperature no extra heat of skin was noticed, and the pulse-beats were only 88.

The records of temperature from this date till the 25th show variations between 96·4° F. and 99·6°. On the 25th the temperature gradually rose through the day from 97° to 104·8° at 11 P.M., reaching at midnight 110°. This temperature was registered a second time by the same thermometer immediately afterwards. After a short interval 109° was registered by another thermometer. Upon this the resident

medical officer, deeming that possibly the temperature might be falling, again took the temperature in the axilla with the thermometer first used, and found it to be 108·4°. Shortly afterwards a third thermometer held in the mouth showed 108°, and again the same at 12.30 only 98°. The first two thermometers again used in the axilla now showed 99·2°. From this time till 1 A.M. the temperature, taken in mouth, axilla, and rectum, remained at about 99°. At the time of the highest temperature the patient was in no way distressed. The pulse was 92. No observation was then made of the number of respirations, but no abnormality was noticed in this respect, and I was again informed that the skin did not feel remarkably hot to the touch.

After a fluctuation between 104° and 99°, according to records made every two hours, the temperature on the 28th was 105·2° at 10 P.M., and 109·2° at 10.55. Ten minutes afterwards it was 99·2° in axilla, 98·9° in mouth, 99° in rectum; pulse 96. The patient stated that she felt very hot at this time. (She had a similar temporary feeling of heat on most of the subsequent occasions of a considerable rise of temperature.) On the 29th the temperature varied between 100° and 106·5° (midnight). Immediately after this last observation 97° was recorded. At 3.15 A.M. on the 30th the temperature was 110°, falling rapidly to 100° and 96°. On the 30th the temperature was taken every quarter of an hour. Several times it fell to 97° and 96°, and for two successive observations it was only 95·6°. In the afternoon it rose to 107·2°. Three successive hourly observations before midnight on the 31st showed 103°, the next record being 96° a little after midnight. On Feb. 2nd at 2 A.M. 110° was registered, falling rapidly to 102°, 100°, 99°, and 98·5°. In the next hour 104° was noted, and on Feb. 3rd at 5 P.M. 109·6°. Temperatures as high as 105° and over were registered every evening till the 15th: for example, 108·6°, 109°, 107·6°, 105·9°, 107·2°, 109·6°, from the 8th to the 13th of February. On the 19th there was an early morning temperature of 109·4°.

Having inferred from these and other observations that the high temperatures lasted for but a short time, and that possibly the highest might have been missed, I now had a registering thermometer strapped in the axilla, and noted every twenty-four hours. This was done every day till March 2nd. On each removal the index showed a temperature over 108°; the highest records being 111·6°, 110·5°, 110°, and, on four occasions, over 109°. During this period of the observations with the maximum thermometer, the following temperatures were taken in the mouth—namely, 108·6° at 2.30 A.M. on Feb. 23rd; 108·8° at midnight on Feb. 24th (the maximum thermometer read at the time giving 109·4°); 107·8° at 10.20 P.M. on Feb. 25th (the maximum, noted at midnight, showing 111·6°); 107·4° at 9.30 P.M. on Feb. 26th (maximum, at midnight, 100°). The temperature now being taken in the mouth only about every four hours, the highest so noted was 103·7° at 4 P.M. on the 27th (the maximum showing 110·5°). On the 28th at 4 A.M. the mouth temperature was 104·6° (maximum 109·6°).

On the 2nd of March, I took the patient under my care at the Westminster Hospital, Dr. Sturges having very kindly offered me a bed for the purpose. There continued to be a frequent recurrence of high temperatures (108° to 111°) on the fixed thermometer; the temperature taken in the ordinary way, sometimes in the mouth, sometimes in the other axilla, being often over 105°. On the 11th and 12th March, 109·4°, and on the 13th and 14th, 108·4°, were noted as evening temperatures. On the 20th, between 4 and 8.30 P.M., 111° was registered by the maximum thermometer. On the 23rd, at 6 P.M., the house-physician registered 107·2° in the right axilla; the maximum thermometer, which had been in the left axilla for only half an hour, showing 107·8°. Five minutes afterwards the temperature in the mouth was found to be 98·8°, and in the right axilla 98·6°. At the time of the high temperature the pulse was 102, and the respiration 32, while the skin was reported to feel very hot to the touch. With the fall of the temperature the respiration fell to 24.

No more observations were made with the maximum thermometer for some time after this date. The highest temperature subsequently observed at the Westminster Hospital was 105° on the night of the 23rd. The patient, having been kept awake for twenty-four hours for the purpose of frequent estimations of urea and the taking of half-hourly temperatures, was left unobserved till the night of the 25th. During this time she stated that she had had once a feeling of heat, as was usual with her at the probable time of most of the higher temperatures. Continuous observation made during the night of the 25th showed only subnormal temperatures. On March 27th, the patient, feeling quite well, with the exception of some slight pain in her back, returned at her own request to her work of nurse at the Children's Hospital. During her stay at the Westminster Hospital she had complained for a few days of considerable dysuria. The urine was found to contain a little blood, some renal and a quantity of vaginal epithelium, and about one-third albumen. The urine became normal in all respects in the course of a day or two, as the pain disappeared. On admission to the Westminster Hospital, albumen was proved absent from the urine, as it had been on previous examinations. The bowels were torpid ever since the enteric diarrhœa ceased; and there had been no catamenial discharge, with the exception of a very slight flow at the end of February, since the beginning of the year. Frequent examination as yet had failed to detect any disease of other organs, nor was any other disorder discovered or complained of. No examination was made of the uterus &c. up to the time of the patient's leaving the hospital. Her general appearance was healthy, and she had gained flesh considerably.

After the patient's return to the Children's Hospital, her temperature, taken four times a day, ranges between 95° and 102·8°. On April 8th, 102·4° was registered at 9.30 P.M., and exactly a quarter of an hour afterwards 99°. The maximum thermometer, which has been in use again from April 6th to present date (April 25th), read off every morning and evening, varies between 102° and 108·6°, a very frequent registration being 104·6°. Temperatures higher than 106° have occurred only since the 18th, from which date till the 25th the lowest maximum reading has been 105°. The pulse, observed morning and evening, varies between 70 and 100; the number of respirations being rarely less than 32, generally higher, and rising on slight exertion to 50 or more. For the last few weeks the patient has complained of frequent sickness, renewed dysuria, pain in the abdomen (chiefly on the left side), and constipation. On the 18th Dr. Fancourt Barnes made a thorough examination of the pelvic organs at my request, the patient being under chloroform. He found the uterus retroflexed, and the left ovary displaced and lying by the side of the os uteri.

The patient still complains of considerable pain in the left side of abdomen, and is frequently sick. The higher temperatures have been of more frequent occurrence since the uterine examination on the 18th. The urine, examined on the 24th, was found to contain a slight cloud of albumen, and the patient states that for two or three nights she found her ankles were puffy on going to bed, but that this symptom did not continue. No œdema is now detectable (April 25th). The catamenia have not appeared.

The extreme abnormality of the temperatures in this case, with their want of connexion with the general symptoms of pyrexia, or signs of tissue-destruction, and their isolation from any known cause, moreover, what is still more remarkable, the rapid fall to a normal or often subnormal point, render necessary some comment on the nature of the evidence for the facts alleged. The sudden heating of the body without serious symptoms is, I apprehend, as difficult of explanation as the extremely rapid cooling.

The following objections may be urged against the genuineness of the facts:—1, error on the part of the observer; 2, inaccuracy of the instruments used in observation; and, 3, imposture on the part of the patient. These sources of fallacy must be briefly discussed.

1. The chief observers of these facts (besides myself) were Mr. Spooner (resident medical officer at the Children's Hospital), Miss Mackenzie (the lady superintendent of nursing there), and Mr. Hayward (house physician at the Westminster Hospital). Each of these observers is known to me and several others as having had considerable experience in thermometric observation, and as being both capable and trustworthy. It may fairly be admitted, then, that the thermometers used really registered the reported temperatures.

2. The objection of the possible inaccuracy of the thermometers fails from the fact that several were used in the course of the case. Often two were used simultaneously, and in one series of observations—viz., of the falling temperature—on Jan. 28th, three were employed.

3. It is often difficult to exclude the element of imposture from an investigation of fact; but, omitting all collateral arguments derived from want of motive, and great desire on the part of the patient to get back to her work, I would call

attention to the following important facts antagonistic to the theory of imposture, with especial reference to the two tricks which obviously suggest themselves—viz., manual or axillary friction of the thermometer, and the placing in its neighbourhood of some extraneous source of heat, such as a small vessel containing hot water or even a heated coal, both of which theories have been propounded by several physicians who have kindly seen the case with me. (*a*) Four temperatures ranging between 107·4° and 108·6° were observed by Miss Mackenzie, the thermometer being placed *in the mouth*, and the patient persistently watched. (*b*) A temperature of 106° was observed by myself on March 2nd, the axilla having been carefully examined, and the patient's hands being in view during the whole time of the observation. (*c*) A temperature of 108·4° was taken on March 13th by Mr. Hayward, who kept in view the patient's hands continuously. (*d*) A temperature of 109·4° was taken on March 12th by the night nurse at the Westminster Hospital, who states that the patient was asleep during the observation, having been awakened for the insertion and removal of the thermometer. The nurse further states that she held one of the patient's hands, and saw the other, the whole time. (*e*) A temperature of 105·2° was taken on the 18th of April by a thermometer put in the axilla at 5 o'clock, and taken out at 9 o'clock, during the whole of which time the patient was partially under the influence of chloroform. She had to be awakened both for the insertion and removal of the instrument. At 4.30, the patient being then fully under chloroform, the temperature of 95° was three times carefully taken in the axilla. (*f*) On Feb. 21st 106° and 105·9° were shown by a registering and non-registering thermometer respectively, held simultaneously in the mouth. This observation was made for me by Miss Mackenzie, as one of a series, several of which served to prove, by the marked difference between the two thermometers, the short duration of the high temperatures. (*g*) On one occasion, at my request, Mr. Spooner fixed a thermometer in the axilla with strapping, and strapped the patient's corresponding arm immovably to her side, covering the thermometer with strapping, and placing seals thereon in such a manner as to render it apparently impossible for the instrument to be reached without detection. On removal of the strapping, 109·6° was noted. It may be remarked, in conclusion, that it is very difficult, even with prolonged and energetic rubbing with some dry substance, to raise the mercury of a clinical thermometer above 104°; in a moist axilla or a wet and smooth-walled mouth I do not think it can be done.

I believe that due consideration of the above evidence will negative imposture in this case, and therefore submit these observations to the profession, as probably facts of great importance, omitting all conjecture as to the cause of the phenomena, nor attempting to connect them with the few signs of disorder as yet revealed by examination.

THE ARTIFICIAL PRODUCTION OF HUMAN DISEASES IN THE LOWER ANIMALS.

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(Concluded from p. 565.)

"THE production of thyroid tumours in animals by the administration of substances derived from the water or soil of countries where goitre is endemic," formed the subject of one of the prizes of the French Academy of Medicine in 1874.[1] A case of *bronchocele* in the dog was shown by Dr. Morell Mackenzie at the Pathological Society of London in May, 1874: he described it as a fibro-cystic disease of the thyroid, or fibro-cystic goitre. At the same meeting of the said Society it was stated that bronchocele is "rare in dogs, even in Derbyshire." But Dr. Crisp remarked, on the other hand, that on the South American mountains, above a certain height, all the dogs are affected with goitre.[2] "Baillarger states that horses and mules become affected by drinking the water of the Isère, which ..... contains much calcareous salts. ..... Not man alone is affected with goitre in the goitrous districts, but also dogs and cats," according to Blyth.

Small-pox has been communicated to monkeys of the genus Cercopitheeus, by Dr. Zuelzer of Berlin.[3] A fatal case of small-pox in a pet red-bird is recorded as having occurred at Chicago in 1876; the disease having been contracted from its master, who was recovering from it.[4] *Cow-pox* in the young hound was produced by vaccination in the hands of Jenner and Berkeley. According to Williams, small-pox and cow-pox are identical diseases; but Chaveau's experiments led him to a different conclusion.[5]

Erysipelas was produced in certain animals by inoculation in the experiments of Arth and Lukomsky.[6]

Fatal *septicæmia*, artificially induced, has occurred in the rabbit and other animals. Under the name of "putrid infection," or "putrid fever," it resulted from the inoculation of putrid blood in rabbits and dogs, in the hands of Dr. Gesualdo Clementi and Dr. Thin, whose experiments were confirmatory of those of Sanderson and Klein, Davaine, and others. Death was preceded by convulsions. In one case there was ulceration of Peyer's patches; in another, pleuritic exudation.[7] Septicæmia[8] was produced in the rabbit by Dr. Richardson, who inoculated fluid from the peritoneum of a human patient suffering from surgical fever, the said fluid being supposed to contain a poisonous organic base called by him "septine."[9] What he described as "putrid fever" was produced in dogs by Professor Binz of Bonn, by injecting putrid ichor, or putrefying blood, under the skin. Under such circumstances, "all the symptoms appear which are to be observed in human beings suffering from putrid fever."[10] But the administration of alcohol diluted with water, either hypodermically injected or given by the stomach, materially and favourably modified the course and fatality of the fever.[11] In a discussion on Pyæmia at the Clinical Society of London, Mr. Hulke stated "we can produce in the lower animals, by the introduction of pus, all the symptoms of pyæmia."[12] Uræmic poisoning also occurs from the hypodermic injection of urea, the symptoms—including unconsciousness and convulsions—being similar to those exhibited sometimes in the course of scarlet fever in man, according to Richardson.

Professor Simonds[13] has pointed out that the infection of *typhoid fever* may be communicated to healthy pigs by men who have been in contact with diseased ones—for instance, in slaughtering them. And this is a fact of serious import, considering the frequency and fatality of typhoid fever in pigs, and the tendency of butchers in our large cities to sell for human consumption the flesh of the diseased animals. For instance, at Bradford, where an epidemic (or epizootic, as veterinarians prefer to call it) of fatal typhoid fever in pigs occurred in the beginning of 1876, a pork butcher was, by the West Riding magistrates, committed to prison for two months for having sold some of the diseased flesh of the dead animals.[14] Wallace, in "his Malay Archipelago," speaks of an illness in a young captive orang "which ran its course like an intermittent fever, and killed it;" the disease "exhibited phenomena altogether human-like." Probably it was intermittent fever. A Natal lion died of fever in the Zoological Gardens, Dublin, in 1864;[15] but in this case, as in so many others, we are not told what was the precise nature of the fever. What is called "low" fever is frequently fatal among donkeys on the east coast of Africa[16]—a fever that may or may not be intermittent, or typhus.

Glycosuria (diabetes mellitus) has been artificially induced in various animals by Eckhard, Tieffenbach, Pavy, Schiff, and others, by some of the following means[17]:—(1) Injury of

[1] As reported in the British Medical Journal, April 11th, 1874, p. 494.
[2] Ibid., May 30th, 1874, p. 710-11.
[3] According to Mr. Jonathan Hutchinson, in a clinical lecture on "Hospital Plagues," in the Brit. Med. Jour., Feb. 7th, 1874, p. 162.
[4] Graphic, May 27th, 1876, p. 527.
[5] Notice of Williams's "Veterinary Medicine" in Brit. and For. Med.-Chir. Review, April, 1875, p. 430.
[6] Braidwood and Vacher's Report on the "Life-History of Contagium," Brit. Med. Jour. 1876, p. 75.
[7] As quoted by Mr. Hutchinson in Brit. Med. Jour., Feb. 7th, 1874, p. 163.
[8] The term "septicæmia" is here used as a general term to indicate "poisoning of the blood from every source," as recommended by Prof. Bennett in Brit Med. Jour., March 14th, 1874, p. 340.
[9] Nature, Aug. 21st, 1876, p. 370. [10] Ibid., Dec. 19th, 1873, p. 132.
[11] As reported in the Practitioner for 1876.
[12] Brit. Med. Jour., Feb. 21st, 1874, p. 223.
[13] In his "Report on the Health of Animals of the Farm," in the Journal of the Royal Agricultural Society of England for April, 1873.
[14] Daily Telegraph, Jan. 28th, 1876.
[15] Brit. Med. Jour., June 24th, 1876, p. 794.
[16] Cameron's "Across Africa," vol. i., p. 158.
[17] According to Dr. Lauder Brunton, in his Lectures on the Pathology and Treatment of Diabetes Mellitus, Brit. Med. Jour., Jan. 1874, p. 40-1, and Feb. 21st, 1874, p. 222.

the cerebellum (Eckhard), or (2) of the superior cervical ganglion (Pavy), or (3) of the optic thalami, cerebral peduncles, pons Varolii, middle peduncles of the cerebellum, cervical sympathetic cord and sciatic nerve (Schiff); (4) under anæsthesia in a hedgehog (Schiff); (5) under poisoning by woorara (or curara) in starved rabbits; (6) puncture of the fourth ventricle; (7) injection of various salts of soda into the veins of rabbits (Eckhard), or (8) of lactic acid into the stomach (Goltz); (9) inhalation of pure carbonic oxide or of diluted coal gas. Dr. Richardson tells us that diabetes mellitus is "induced in the lower animals by a minute mechanical injury, the prick of a needle in the region of the fourth ventricle of the brain"—that is, by nervous injury. In his own experiments, which were confirmed by Dr. Pavy, grape sugar or glucose appeared in the urine of the dog: saccharine diabetes "could always be artificially produced" by exposing the animal to the influence of carbonic oxide or of diluted coal gas; while it is further interesting to note that it has occurred in man from the accidental inhalation of common coal gas.[18] He also mentions[19] that in the experiments of Tardieu and Roussein, with coralline dissolved in alcohol, in doses of a few grains, fatal poisoning was the result after a few days' use of the drug, followed by fatty degeneration of the liver in certain animals.[20] The same sort of hepatic disease is artificially produced by man in the well-known *paté de foie gras* of geese in France.

Albuminuria has been artificially produced in the rabbit according to Dr. George Johnson, of London, and Professor Rutherford, of Edinburgh.[21]

Dr. Richardson specifies *cataract* as the type of the synthesis of a well-known disease, and as "the first visible demonstration" thereof. He describes two classes of artificial cataract as produced respectively by saline and saccharine solutions. In the frog cataract was produced by Dr. Weir Mitchell, of Philadelphia, by—(1) Immersion of part of the body in syrup; or (2) in solution of grape sugar; or by (3) injecting such a solution into the dorsal cul de sac.[22] In Dr. Richardson's hands, cataract was created in other animals by (4) the use of diabetic sugar from a human patient; (5) after death in the sheep or other animals by injection of sugar into an artery, the peritoneal cavity, or the aorta; and he found it also (6) producible by all the soluble salts of the blood.[23] Cataract is probably far from uncommon in house pets. I have seen it in an old cat, and the *Animal World*[24] gives an instance in a dog (terrier).

Hæmatoma auris—auricular hæmatoma—which in man is most familiar among the insane, and which is essentially a hæmorrhage into the external ear, was generated in the guinea-pig by Dr. Brown-Séquard, by injury to the corpora restiformia of the brain. The lesion in question, which is known to veterinarians as external canker of the ear in the dog, is in that animal always traumatic.[25] And it has been alleged and believed that the same is the case with auricular hæmatoma in the human insane. But one argument at least against the supposition of its being the result in the latter of ill-usage by attendants or each other, is that the ear is not the part of the body most likely, or most apt, to be, in them, affected by or subjected to maltreatment. Specialists who take a pleasure in observing or creating distinctions—pathological and other—between the insane and sane, long regarded such a lesion of the ear as peculiar to the human insane. But I have long held, and long ago pointed out, that it is neither peculiar to the insane nor to man.[26] In April, 1876, Dr. Phillimore, of the County and Borough Lunatic Asylum, Nottingham, wrote me saying, "I have seen tumours of the ears in pointer dogs, and should like to know if they are sanguineous tumours or glairy cysts." That of course can only be determined by opening them before or after death.

Dr. Bollinger, of Zurich, produced *epithelioma contagiosum* by confining healthy with diseased animals. "But this did not occur in pigeons or in domestic mammalia"—that is, they were not affected when, similarly with certain other animals, exposed to contagion. This is one of the many lessons that a study of artificially-produced diseases in the lower animals teaches us—concerning the remarkable immunity or non-predisposition of certain individuals, genera, or species from or to diseases that prove so commonly and extensively fatal to the majority. Bollinger regards this disease, as exhibited, for instance, by domestic fowls, as "analogous to molluscum contagiosum in man." The animals affected frequently die of inflammation of the larynx and progressive cachexia.[27]

"The researches of Hughes Bennett's committee conclusively showed that mercury can produce salivation, ulceration of the gums, and other signs of its constitutional action, in the dog as well as in man."[28]

Skin disease was produced in the dog, by Dr. Gruby, by transferring the Acarus folliculorum from an affected to a healthy animal; and the same disease is readily communicated from one dog to another in the same kennel or ward.[29]

In a discussion on cancer at the Pathological Society of London in April, 1874, Dr. Crisp stated that "cancer is not at all an uncommon disease amongst our domestic animals; in wild animals, so far as I know, there is no case on record."[30] In other words, it must be considered one of the diseases incident to the civilisation or domestication of animals by man. The animals in which it occurs—according to the same authority (Dr. Crisp)—include the pike,[31] and especially the common fowl.[32]

Scarlatina, or what is so called, is described by the London poultry-breeders as occasionally fatal among London poultry, according to Dr. Pollock.[33]

Syphilis—probably the most loathsome of all his diseases that man ventures to communicate experimentally to other animals—has been the subject of a paper or book by Professor De Welz, of Wurzburg.[34]

Fracture of the tusks of timber elephants—that is, engaged in the haulage of timber—at Moulmein occurs occasionally from the excessive or disproportionate weight of the materials which the willing, obedient animals are called upon to move; and such fracture is fatal if it takes place close to the head.[35] This is an excellent example of man's impolitic, injudicious cruelty to his servant animals—his "penny wise and pound foolish" treatment of those fellow-labourers on whom so much of his own pecuniary prosperity depends. But it is a lesson which, ever being taught, is never learned. It seems the most difficult or hopeless thing in the world for man to realise that, in his treatment of his domesticated animals, humanity is the best policy!

[18] Nature, June 28th, 1876, p. 171.
[19] Diseases of Modern Life, p. 154.
[20] Ibid., p. 457.
[21] Brit. Med. Jour., Dec. 6th and 20th, 1873, pp. 664 and 730.
[22] Nature, August 31st, 1876, p. 309.
[23] Ibid., p. 370.
[24] For January, 1874, p. 12.
[25] Veterinary Journal, August, 1875, p. 189.
[26] Vide what I have said on this subject in "Illustrations of Morbid Anatomy in the Insane," Journal of Mental Science, Jan., 1867, p. 522.
[27] Brit. Med. Jour., April 25th, 1874, p. 551, quoting from Virchow's Archiv.
[28] Rutherford and Vignol's "Experiments on the Biliary Secretion of the Dog," Brit. Med. Journ., Dec. 11th, 1875, p. 17.
[29] Brit. Med. Jour., June 13th, 1874, p. 773; quoting partly from the Comptes Rendus of 1845, and the Monthly Journal of Medical Science for Nov. 1846.
[30] As reported in the British Medical Journal, April 11th, 1874, p. 437.
[31] Richardson's Diseases of Modern Life, p. 220.
[32] Dr. Crisp at the Pathological Society (Brit. Med. Jour., March 13th and June 12th, 1875, pp. 305 and 780).
[33] Brit. Med. Jour., June 12th, 1875, p. 780.
[34] Entitled "De l'Inoculation de la Syphilis aux Animaux" (Paris 1850).
[35] Vincent's Land of the White Elephant, p. 57.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. MARY'S HOSPITAL.

TWO CASES OF POPLITEAL ANEURISM, IN WHICH THE FEMORAL ARTERY WAS SUCCESSFULLY TIED, AFTER FAILURE OF GRADUAL COMPRESSION IN ONE, AND OF COMPRESSION WITH ELASTIC BANDAGE IN THE OTHER.

(Under the care of Mr. JAMES LANE.)

For the notes of these interesting cases we are indebted to Mr. Rayley Owen, house-surgeon.

S. H——, aged thirty-five, a plasterer, was admitted on Sept. 1st, 1877. Had always been healthy, and had been in the habit of drinking six or seven pints of beer daily, but had never had syphilis. For the previous four weeks he had

had constant pain round the right knee, preventing walking. Three days before admission he noticed a swelling at the back of the knee, intense pain calling his attention to it; but for four years whenever he had stooped he felt as if his leg were broken behind the knee. Never had had much heavy work.

On admission, there was a swelling the size of a hen's egg in the lower part of the right popliteal space, pulsating from side to side; pressure on the femoral emptied it. Measurement round swelling, 14½ in.; on other limb, 12 in. A loud bruit could be heard; he kept his leg semi-flexed, being unable to extend it; heart and lungs healthy; urine free from albumen. In Mr. Lane's absence, Mr. Norton adopted the treatment by gradual compression. Flexing the leg on the thigh, and bandaging them together, he placed thick pads over the femoral artery in Scarpa's triangle, and then applied a spica. Pulsation was arrested to a great extent, but on the next day (the 4th) it was as strong as ever. Temperature 100·2°; leg warm. Fresh pads and 6 lb. shot bag were then tried, which stopped the pulsation very much, but on the 5th it was no better, and the pressure was left off. Measurement the same. Ordered twenty grains of iodide of potassium. On the 7th pressure was applied by means of pads, splints, and weights, but the patient could not endure them long. On the 9th he was no better; pressure had been kept up on and off, with no decrease of measurement, although pulsation seemed less. Mr. Lane commenced treating the case on the 12th, and continued the pressure.

On the 20th he suddenly lost sensation and power of motion in the toes and foot, which were cold. There was much œdema and discolouration up to the knee, so that gangrene was feared. All pressure was immediately discontinued. No further signs of gangrene showed themselves, and Mr. Lane concluded those that had appeared were due to pressure on the popliteal nerve and vein.

It was decided to ligature the femoral artery, as patient was no better. The operation was performed antiseptically on October 2nd. The vessel was tied with carbolised catgut ligature, which was cut short; the same material was used for the sutures, and a drainage-tube inserted. The wound was dressed on the 5th; it looked healthy, and promised to heal by first intention. There was no pulsation in the tumour; scarcely any sensation or power of movement in the foot. The drainage-tube was removed on the 9th. There was no discharge; and the limb measured fourteen inches. The wound was then dressed every other day. It was quite healed on the 16th. The sutures had sloughed out, but there was no improvement in the foot.

At the end of the month (October) he complained of pain on the outer side of the leg, in the lower third, where the skin gradually sloughed and formed a nasty sore. He regained slight sensation in the foot, but the sore was a long time healing; it was thought to depend on the pressure of the aneurismal tumour on the nerve. It was not till Feb. 1st that he could be discharged. For a short time before going out he wore one of Charcot's copper plates, and from this he derived some benefit. He could bear some pressure on his foot, and there was but little difference in the size of the two legs. While at Bognor the swelling in the foot subsided, but sensation was still greatly impaired. The sore became an ulcer, and has hitherto obstinately resisted treatment.

The second case is that of W. B——, aged twenty-eight, carman, admitted on Sept. 15th, 1877. He had always had good health, had been a moderate drinker, and denied having had syphilis. He had had much heavy work. In July he slipped down three steps, but did not actually fall; it was only during the three weeks previous to admission that he had felt pain. On Sept. 12th he noticed a swelling in the left ham, but nearly a fortnight before this he had been unable to stand on this leg.

On admission he was unable to flex or extend his leg. In the left popliteal space was a swelling the size of a small orange, hard, with an elastic resisting feel. Pulsation was not well marked, and pressure above stopped it. Measurement over joint was 17 in.; on the other limb 14½ in. A bruit was audible. The left foot and ankle were swollen. Three days' rest and the application of a flannel roller reduced the measurement to 15½ in. Temperature 99·8°. Mr. Lane thought this was a suitable case for the elastic bandage. Accordingly, on the 19th, the bandage was applied in the usual manner, and the circulation completely arrested. As the man could not endure the severe pain more than ten minutes, he was put under chloroform for fifty minutes. On removing the bandages at the end of that time pulsation was less, and there seemed to be some consolidation. Digital pressure was kept up for another hour, and then a tourniquet was applied. In the evening, however, pulsation returned with all its original force.

On the 20th the swelling measured 16 in.; pulsation was just the same; left foot warm.

On the 22nd pulsation was very strong, and Mr. Lane decided to ligature the artery without delay. The operation was performed under the antiseptic method in the usual manner; catgut ligature was employed, and a drainage-tube was inserted. In this case wire sutures were used.

There was no return of pulsation on the 24th; the temperature was normal, and the limb measured 15½ in. The wound was dressed and found to be nearly healed. The tube was removed.

On the 28th there was a little discharge. The limb measured 14½ in. The stitches were removed.

The wound healed by first intention, except in one small place in the centre of the incision from which some inoffensive discharge came; it was therefore dressed every day for a few days. The man quickly recovered, and the measurement gradually diminished to 13 in. When he left the hospital early in November he could bear a great deal of weight on this leg.

Remarks.—In the first case gradual compression completely failed after a careful and protracted trial, and it seems probable that had it been sooner abandoned, and the ligature resorted to, the serious consequences arising from aneurismal pressure on the vein and nerve might have been avoided.

In the second case the application of the Esmarch bandage for an hour, so far from being of service, was followed by an increase in size of the aneurism and an aggravation of the symptoms, which rendered the speedy application of the ligature necessary. This mode of compression, although it has been signally successful, appears to be very uncertain in its operation. In a third case in the hospital at the same time, under Mr. Page, which has recently been recorded in THE LANCET, it was applied on three occasions without any result, and the artery was therefore tied.

In all three cases a rather stout catgut ligature was used, great care being taken to tie it tightly and securely. It was employed also shortly afterwards in a fourth case of popliteal aneurism under the care of Mr. Edmund Owen, and proved perfectly satisfactory in all, none of the untoward results to which it has been said to be sometimes liable having occurred. The ends of the ligatures were in each case cut short, and nothing more was seen of them.

The fourth case of aneurism alluded to as under the care of Mr. Edmund Owen was that of A. S——, aged twenty-four, a clerk, who was admitted on Dec. 15th in a very debilitated condition, suffering not only from an aneurism in the left popliteal space, but also with loud mitral systolic murmur and bronchitis. He had had the swelling for two weeks, and it corresponded in all ways to the two above recorded. Mr. Owen in this case decided not to submit the patient to the wearying process of compressing the artery on account of the state of his heart, but ligatured the femoral on Dec. 19th in the usual way, using a catgut ligature, a drainage-tube being inserted in the wound. The incision healed by first intention in the upper three quarters, but in the lower part there was a good deal of suppuration, which, however, soon yielded to treatment, the discharge never becoming offensive. The general health improved very much after the operation, and the man was discharged cured, with scarcely any swelling in the left space, early in February. It may be noticed that this case made the fourth popliteal aneurism in the hospital within a space of four months.

ST. BARTHOLOMEW'S HOSPITAL, CHATHAM.

LACERATION OF LUNG, DIAPHRAGM, AND LIVER, BY FRACTURED RIBS.

(Under the care of Mr. A. W. NANKIVELL.)

FOR the following notes we are indebted to Mr. J. Thoresby Jones, assistant house-surgeon.

S. S——, aged thirty-nine, a carman, was admitted on Feb. 16th, 1878. He stated that he had fallen from the seat of his van, a height of eight feet from the ground, and he believed that the wheel had passed over him. His companion picked him up, placed him in the van, and conveyed

him to this hospital, a distance of twenty-three miles. He arrived ten hours after the accident, and was able, with assistance, to walk forty yards and down a flight of twenty steps. He was suffering from difficulty of breathing and pain in the right side, but was not much collapsed. On examination it was found that there was considerable bruising of the right side and back; emphysema over most of the side and crepitus were distinctly felt; there was no lateral wound. A body bandage was at once applied, and he was removed to the ward. He was seen frequently during the rest of the day. There was no supervention of collapse. The urine was examined, and found free from blood; the sputa were tinged with blood. In the evening his breathing was laboured; percussion over right side yielded a tympanitic note; no dulness on percussion of abdomen. The following morning (Feb. 17th) he was in a cyanotic condition; the emphysema extended from the margin of the ribs to the scalp. He gradually became worse, and died twenty-eight hours after admission and thirty-eight after the accident.

The necropsy revealed the following conditions:—Ecchymosis of right side and back, extravasation of blood over whole of thorax, and laceration of pectoralis major and latissimus dorsi on the same side. On opening the thorax a pint of dark fluid blood was found in the cavity of the right pleura. The lung was lacerated to the extent of three inches on the outer aspect, the laceration extending deeply into the lung substance. The ribs from the third to the ninth inclusive were fractured, the eighth and ninth immediately in front of their angle, the posterior fragment of each of these protruding to the extent of an inch through the costal pleura. The diaphragm was abraded in two places, and near the centre of the right half was a perforating wound about the size of a florin. The liver at upper margin of right lobe was deeply lacerated, the wound being the size of a crown-piece, and corresponding in situation to the wound in the diaphragm. Half a pint of fluid blood was found in the abdominal cavity. On the left side of thorax the fourth, fifth, and sixth ribs were fractured immediately external to their cartilages, but without displacement or effusion, and without injury to left lung or heart. The spleen, kidney, stomach, and intestines were uninjured.

This case is remarkable from two circumstances—a penetrating wound of the diaphragm and laceration of the liver by the projecting ends of broken ribs, and the length of time that the patient survived, together with his power of walking on his arrival at the hospital. The quantity of blood effused into pleura and abdomen was very small, considering the deep and extensive lacerations of both lung and liver.

ROYAL INFIRMARY, MANCHESTER.

CASES OF FIBROID TUMOUR OF THE UTERUS.

(Under the care of Dr. THORBURN.)

FOR the notes of the following cases, which were recently under treatment at this infirmary, we are indebted to Dr. Henry Tomkins.

Fibroid of uterus with suppurating cyst.—M. S——, a healthy married woman, aged thirty-five. She had had two miscarriages between third and fourth months, the last occurring more than seven years ago. Never had a child born at full time. Always menstruated regularly and normally.

About nine years ago she first noticed some fulness in the abdomen. This went on for four years, increasing slowly in size. She was then admitted into the infirmary, and was found to have a hard tumour diagnosed as fibroid of uterus, with much pain and some indistinct fluctuation on the right side. A small trocar was inserted, and a few drachms of sero-purulent fluid evacuated. Three or four months after this she again became an in-patient, was again tapped, and a considerable quantity of pus removed with much relief. A year elapsed, and she again returned. The tumour had not much increased in size, but she complained of much pain on the right side. She was tapped once more, but no fluid of any sort was obtained, and she again left the hospital.

On the 8th of November, 1877, she was readmitted an in-patient. The tumour was but little altered in size, but on the right side there was an indistinct sense of fluctuation, extending over an area four inches in diameter. The rest of the tumour appeared solid, extending two inches and a half above the umbilicus. Flanks were resonant. Circumference over umbilicus 38½ inches. Examination per vaginam did not give much sign of the presence of a tumour. The cavity of the uterus was increased, measuring 3¼ inches. The cervix was drawn up and almost obliterated. She had never had flooding.

Two attempts were made to remove fluid from the right side, but without success, although the presence of some fluid was almost certain.

This case was apparently one of fibroid of uterus, with a cyst of some sort on the right side, in which suppuration had taken place.

Fibroid of the uterus, with cyst.—A. E——, a married woman aged forty-nine, was admitted on Oct. 22nd, with the following history. She had always enjoyed good health. Menstruation regular until cessation. Had had two children. About three years ago she first noticed a swelling in the abdomen. The swelling increased very slowly until six months ago, but since that time has enlarged rapidly. She never had floodings.

On admission, the abdomen was large, measuring thirty-eight inches round the umbilicus. The tumour did not project more to the right than to the left side; it rose two inches above the umbilicus. Percussion dull all over the tumour, but resonant in the flanks. On the right side the tumour was hard and solid; on the left there was fluctuation and distinct percussion-wave, indicating fluid. Examination per vaginam showed a large, hard mass at the posterior part of the uterus; pressure made upon the tumour through the abdominal wall was distinctly felt here. The cavity of the uterus was slightly enlarged.

The tumour was tapped on the left side, where the fluid was supposed to be, and six pints of pale greenish serum evacuated, which yielded a scanty purulent deposit on standing. After the removal of this fluid, a distinct hard tumour was apparent, rising a little above the umbilicus and descending into the pelvis. Circumference round the umbilicus thirty-three inches.

The question here to be decided was whether the case was one of fibro-cystic tumour with a much larger cyst than usual, or whether both a fibroid tumour of the uterus and an ovarian cyst existed side by side.

Medical Societies.

CLINICAL SOCIETY OF LONDON.

"Urticaria Pigmentosa."—Cacotrophia Folliculorum.—Ovariotomy in a Girl twelve years of age.—Wound of Abnormal Obturator Artery in Herniotomy.

THE ordinary meeting of this Society was held on the 26th ult., the President, Mr. Callender, in the chair. Four papers were read. Two dealt with skin affections—viz., one by Dr. Sangster, who showed a case of a general eruption in a child, the precise nature of which is still matter of dispute, and one by Dr. Fox on a congenital defect of the hair-follicles. A successful case of ovariotomy for dermoid tumour in a young subject was contributed by Dr. Barlow and Mr. Marsh, whilst Mr. Barker related particulars of a case of strangulated femoral hernia, in which an abnormal obturator artery was wounded. He gave statistics showing the rarity of the complication, and the relative merits of ligature and compression for the arrest of the hæmorrhage.

Dr. SANGSTER exhibited a child suffering from an anomalous skin eruption, which he had provisionally called "Urticaria pigmentosa." The boy was two years of age, and was first seen by Dr. Sangster in August last, when he had a peculiar buff-coloured and red mottled rash more or less over the whole body, but especially on the thighs and legs. On the limbs it was most marked at the flexures. It consisted of patches, some slightly raised, but with no obvious increase in substance, at first red, then paling into the buff tint. There was much pruritus, which on scratching produced wheals. The eruption commenced, when the child was two months old, as a red mottling gradually spreading over the trunk and limbs. One of his grandparents and an

uncle had suffered from psoriasis. The child had jaundice when twelve months old, and its skin also rose in wheals on the slightest irritation. The case resembled others brought before the Society by Dr. Tilbury Fox, Dr. Barlow, and Mr. Morrant Baker. It was essentially a vaso-motor change, having a tendency to become permanent, and leading to pigmentation.—Dr. TILBURY FOX said that the case was no doubt similar to those first brought before the Society in 1875 by Mr. Baker and himself. At that time he saw three cases, in all of which the eruption was more prominent than in the present case, but he had recently seen an example in which the patches were flattened. He had figured these two conditions in his Atlas, and he had no doubt that Willan's Plate lx. was intended to illustrate the same eruption, which Willan called "vitiligo." He did not think we were yet in a position to decide its precise nature. Its extreme chronicity separated it from urticaria, and Dr. Thin's observations in Mr. M. Baker's case showed a peculiar cell-infiltration like that of lupus, with which, however, its clinical history did not ally it. It was nevertheless important to recognise it, for it had been mistaken for syphilide, and treated as such. The Society was much indebted to Dr. Sangster for introducing so well-marked an example of this rare affection.—Mr. HUTCHINSON thought that the number of cases now recorded were enabling us to have a good clinical view of the disease, for which at present the term "urticaria pigmentosa" was a good one. In urticaria perstans there was an instance of an urticaria lasting over long periods, and it was very probable that its long continuance was accompanied by retrogressive changes of a permanent character. The elevated wheals produced by irritation in the early stages of the affection were indistinguishable from urticaria. Mr. Baker's case was a very peculiar one, and of a severe type; Dr. Barlow's was also a severe one in one point of view; whilst the present case differed but little from a long-continued urticaria. Mr. Startin had observed a similar case, and had placed a model of it in the Hospital for Diseases of the Skin, Blackfriars. Mr. Hutchinson added that it was possible that the cause of this urticaria was local and due to bites of insects. The varied effects produced on different skins by bites of bugs and fleas were well known. The former epizoon rarely attacked young children, but in certain idiosyncrasies it was not uncommon to find a persistent condition of urticaria set up by its bite. In support of this hypothesis, which might be thought rather fanciful, he urged that in most of the cases the eruption was not associated with any definite dyscrasia, and it began also in certain special parts. In Dr. Barlow's case some spots like those produced by bites were to be seen. Mr. Baker's was a much more chronic case, and it was likely that the traces of the bites had disappeared. — Dr. SANGSTER, in reply, said that the eruption had never been raised. The pigmentation was suggestive of a long-continued congestion; but the appearance of a red mottled rash at the age of two months, when the disease commenced, was opposed to this view. He had himself almost come to the conclusion that the eruption was due to local causes, and had made particular inquiries on this head. The child had not worn a "binder" after birth; and, although bitten by mosquitoes at New York where it was born, no unusual effects followed the bites; nor did anything follow on vaccination. It had jaundice in infancy—a fact of interest, seeing that jaundice is so often associated with skin lesions dependent on abnormal innervation, as well as xanthelasma, with which this form of eruption had been compared. — The PRESIDENT mentioned that he had lately seen a gentleman with extensive permanent pigmentation of skin about the scalp and neck, referred to bites of mosquitoes. — Dr. FOX said that such conditions were common after mosquito bites.

A paper was then read by Dr. TILBURY FOX on "Cacotrophia Folliculorum," an affection of the hair-follicles, somewhat resembling lichen scrofulorum or pilaris, but perfectly distinct, and hitherto undescribed. He had shown a drawing of this affection at the Manchester meeting of the British Medical Association, and in his lectures this year Mr. Erasmus Wilson had described the affection. Lichen pilaris is a disease of adults rather than of young people; it is acquired; occurs chiefly on the thighs, and includes a variety of simple inflammatory conditions of the follicles. The present affection differs from lichen pilaris in the deepest part of the hair-follicles being involved, so that the hairs are few or absent; it affects frequently almost all the follicles of the body, is truly congenital, and dependent on some defective or indolent nutrition. There is papulation from accumulation of products in the follicles, and there is also passive congestion of the papules. Often in the outer part of the upper arm, shoulder, and back, the enlarged follicles appear as red points dotting the surface of the skin, on which there is a red blush; the few hairs remaining are much atrophied. Some of the papules are acneiform; they resemble the solitary papulation of xeroderma. The affection occurred chiefly in strumous subjects, and in women, often not becoming developed to its full extent till puberty. It is certainly not inflammatory, and might be described as a xeroderma of the hair-follicles. Mr. Wilson says that it is met with in families of which some members are ichthyotic. From lichen pilaris it differs in being more or less general in its distribution, in involving the deeper as well as the superficial parts of the follicles, in its apparently congenital nature, its intractability, and, lastly, in the absence of the ordinary causes of lichen pilaris. Dr. Fox's paper contained details of four cases—one of which he briefly read. As to treatment, he pointed out that in cases complicated with other conditions—e.g., acne or seborrhœa—such complication should be treated, and cod-liver oil, tonics, and regulated diet given. In uncomplicated cases, bran and alkaline baths, and in some cases dilute tar ointment, &c., but too stimulating remedies were to be avoided. It was very obstinate to treat.—Mr. HUTCHINSON said that it appeared that the condition described was only a part of xeroderma or ichthyosis, where the hair-follicles were often plugged and formed papules; and it was undesirable to give a name simply to one condition of this disease. It was clearly owing to a congenital defect in the skin, especially involving the hair-follicles—a defect which was part of ichthyosis. — Dr. WILTSHIRE said he had seen this condition in idiot, blue-eyed children of Mongolian type, with clubbed fingers, &c., showing its dependence on congenital defect.—Dr. TILBURY FOX, in reply, said Mr. Hutchinson was perfectly correct in saying that the hair-follicles were often plugged, and formed papulations in ichthyosis, but that was not the condition described in his (Dr. Fox's) paper; and he judged from his remarks that Mr. Hutchinson was really unacquainted with the latter. It was scarcely to be supposed that Mr. Erasmus Wilson, with his profound, and he (Dr. Fox), with his now ample, experience, should have made the blunder of describing a common aspect of ichthyosis as an undescribed clinical condition. When his paper was published he hoped Mr. Hutchinson would give him the reference to any published description of the form of eruption dealt with in the paper, and in that case he (Dr. Fox) would be only to happy to eat humble pie before the Society on a future occasion.

Dr. T. BARLOW then read notes of a case of "Ovariotomy in a Girl aged twelve," by himself and Mr. Howard Marsh. The patient was first seen on July 6th, 1877. There was then enlargement of the abdomen, rather more on the right than on the left side, and a tumour, movable laterally and from above down, could be felt at the lower part. It was of varying consistency, and felt like a tense cyst. It did not appear to descend into the true pelvis. There was resonance in the flanks. The liver could not be felt. There was no œdema of the lower limbs, and the child had walked to the hospital. She was thin, pale, and spare. There were no enlarged glands. The tongue was clean, and the skin cool. The father was said to have died from consumption, and the child had had measles in infancy. Eighteen months before, her mother had noticed a swelling on the right side below the navel. It had gradually increased in size, and during the last six months the girl had got thinner and paler. The diagnosis arrived at by Dr. Barlow and Dr. Lees was that there was a tumour of the right ovary; and the patient, being admitted into the hospital, was also seen by Mr. Marsh, who concurred in the diagnosis. About a drachm of clear albuminous fluid was withdrawn by a tentative puncture with a hypodermic syringe, and rectal and vaginal examination yielded no further evidence. Four days after the puncture the abdomen was noticed to be less full, and its girth to be reduced, and, at the same time, a solid mass could be more readily felt. The probability of the growth being a dermoid cyst was now entertained. In a few days the fluid reaccumulated; and on the 29th July six pints of fluid of the same physical characters were withdrawn by the aspirator. Mr. Marsh now decided to perform ovariotomy, and on August 10th the abdomen was opened by a median incision, the tumour tapped (80 oz. of fluid withdrawn), the pedicle secured by the clamp, and the tumour removed; the peritoneum was

closed by ligatures, which were cut short. Beyond a little sickness and a slight rise in temperature (never above 100°), no bad symptoms followed, and the patient made a good recovery. The tumour, which was six inches in circumference, was found to consist of numerous cysts; the largest, which had contained fluid, being of the size of a cocoa-nut, and others containing partly fluid and sebaceous material, hair, and plates of bone. Dr. Barlow added that one point of interest in the case was the manner in which the main cyst emptied itself in the few days after the first puncture, when only a drachm of fluid was withdrawn. At one time he had thought this could only be explained on the hypothesis that the source of the fluid was an encysted peritonitis, but Mr. Smith suggested the very probable view that after this puncture the fluid slowly drained out into the peritoneum and became absorbed. In reply to the President, Dr. Barlow said the patient had not menstruated.—Mr. MARSH remarked that Mr. Spencer Wells had operated successfully on a child eight years old, and that there was a case recorded in America of the age of seven years. Another case, in a child of three years, ended fatally. He had been told that M. Basil, of Bonn, had performed ovariotomy on a child two years of age. In reply to Dr. Wiltshire, he added that most if not all of the cases were examples of dermoid cyst.—Mr. MAUNDER said one important feature in connexion with cystic tumours of the abdomen was the question of preliminary tapping. He had known, and, doubtless, others present were acquainted with, instances in which the simple tapping of an ovarian cyst had led to a fatal peritonitis. He was therefore of opinion that this should not be done except in obscure cases as an aid to diagnosis. The present case indicated a leakage into the peritoneal cavity, notwithstanding the small instrument that had been used, but fortunately no serious result followed. Assuming the radical operation justifiable in a given case, it was very undesirable to submit the patient to additional risk without corresponding advantage.—Dr. WILTSHIRE said that tapping of dermoid cysts was especially dangerous, and liable to be followed by peritonitis. He related the case of ovarian cyst, thought to be unilocular and parovarian, in an adult. On tapping, the trocar became blocked by dermoid products, some of which evidently escaped into the peritoneum, for severe peritonitis followed. A fistulous opening was allowed to remain. The hyaline fluid of parovarian cysts was less liable to set up peritonitis. Alcock had operated on a child three years old, and another case was to be found in THE LANCET for 1870.—Dr. COUPLAND inquired for instances of fatal peritonitis following puncture by so fine an instrument as a hypodermic syringe, for it was likely that the puncture made by it would be too small to allow of the leakage of the coarser semi-solid, and possibly acrid, material found in dermoid cysts.—The PRESIDENT said it was desirable that in tapping cysts a considerable quantity of fluid should be withdrawn, so that the tension within the cyst might be lowered, and the risk of oozing after operation thereby much diminished.—Dr. BARLOW, in reply, said that he had never seen the least harm result from the use of the hypodermic syringe in tentative puncture. At any rate, it could only be settled by experience. Such leakage as was presumed to have occurred in the present case most often takes place after tapping in cases of hydatid tumour of the liver, but he had never seen any ill result follow. Hence he was inclined to think that ill results were due rather to the use of large trocars, or to some violence done in the operation. The hypodermic syringe might be used with advantage far more frequently. He had seen many cases of withdrawal of small quantities in pleuritic effusion followed by rapid absorption. He was quite prepared to lay stress upon the propriety of performing this tentative puncture.

Mr. BARKER read notes of a case of Wound of an Abnormal Obturator Artery in an operation for Femoral Hernia. The patient, a corpulent female, aged fifty-six, was admitted into University College Hospital on Feb. 7th, 1878, with strangulated femoral hernia. In dividing a few constricting fibres at the neck of the sac, some blood welled up, and the hernia was reduced, but blood continued to ooze from the neck of the sac; but not knowing whether it was venous or arterial, and not liking to search too deeply for the source of the bleeding, the wound was closed and pressure applied, about two ounces of blood having been lost. There did not appear to be any recurrence of the hæmorrhage, although early on the third day for a few hours the patient was very faint and pale. She soon rallied, however, but died on the fourth day from acute peritonitis. At the autopsy a thin layer of blood was found effused in the subperitoneal tissue. An abnormal obturator artery was found to pass over the neck of the sac on its inner side; it was divided about an inch from its origin. The bowel was almost gangrenous, and there was commencing peritonitis. The heart was fatty. The case was a rare one, and he hoped to learn what was the best method for dealing with such a complication. It would have been very difficult in the present case to have enlarged the wound and searched for the artery, and he had found, on reference to recorded cases, that as good results followed in cases where ligature has not been attempted. He had found records of sixteen cases, in four of which, however, the result was not stated. Of the remainder, in six ligature was applied, and in six the bleeding was arrested by pressure only. The results were rather more favourable to non-interference.—The PRESIDENT had but once seen the obturator artery wounded in the operation for hernia, and that was in Mr. Stanley's case referred to by Mr. Barker. There the artery was tied, and the patient recovered. In his own experience, although he had met with hæmorrhage, yet he could not say that it was from the obturator, and he had always controlled it by local pressure. In all cases that recovered there must of course be some doubt as to whether the obturator artery were wounded or not, and he did not think the proportion of deaths given in the cases quoted by Mr. Barker above the ordinary death-rate of hernia. He would say that each case should stand on its own merits, for in one case pressure and in another ligature might seem the best course to pursue.—Mr. HUTCHINSON agreed that each case should stand on its own merits, and that in the present case no doubt the best was done for the patient. Did Mr. Barker think there was any secondary hæmorrhage? If not, clearly the means adopted for the arrest of the bleeding were sufficient, and it was plain that death occurred from peritonitis. In a thin subject, with hæmorrhage obviously arterial, no doubt the ligature would suffice. He advocated plugging the wound deeply with a portion of sponge, as more certain to control bleeding than a pad applied externally. He had never had to deal with cases where the obturator artery was thought to be wounded, but on two or three occasions he had met with serious hæmorrhage, which was controlled by the above means.—Mr. MAUNDER thanked the author for the valuable information conveyed in his paper. Mr. Barker had very efficiently performed the irksome and distasteful task of hunting up statistics, and had clearly indicated the line of treatment to be adopted. Doubtless an individual case must be treated on its own merits, and in an instance of severe hæmorrhage the bleeding vessel might be sought for. Failing to find this, compression must be resorted to, through the wound, and upon the actual source of the bleeding. In the present case, the patient being stout, and the compression indirect, it was probable that the arrest of bleeding was not due to the pressure applied, but was spontaneous.—Mr. BARKER, in reply, said that he had, as far as possible, excluded all cases in which there was a doubt as to the source of the bleeding. His chief object was to show that the rule laid down in books, that in all cases the bleeding vessel should be sought for and ligatured, was too hard and fast. Although at one time the patient became faint and blanched for a few hours, yet there was no evidence of secondary hæmorrhage having occurred to any extent.

EPIDEMIOLOGICAL SOCIETY.

The Plague and Typhus Fever in India.

AT the meeting of this Society on the 10th ult., a paper was read by the President, Dr. MURRAY, on the "Plague and Typhus Fever in India," of which the following is an abstract:—Plague, or bubonic typhus, was first noticed in India during the present century. It appeared in Kntywar, on the west coast, in 1816, and caused great mortality till 1821. It crossed a range of hills, and appeared in Rajpootana, at Pali, in 1836, and spread to the surrounding towns till 1838. The typhus fever, with prominent symptoms of yellow fever, appeared to extend northward in 1837-8 to the Doab and Rohilcund. In 1836 the plague was reported to be causing great mortality in Gurhwal and Kumaon, in the Himalaya mountains. On investigation it

was found that this disease had first appeared in 1823 in Gurhwal, at a temple at Kidarnath, where the people said that it was an infliction from the gods for a neglect by the high priest of the ceremonies prescribed in the Shasters. It killed the high priest and all the Brahmins of the temple, and spread with the pilgrims to the surrounding country. It continued to spread to the surrounding country, with occasional aggravations, from that date down to 1877. In 1852 a typhus fever, with symptoms of yellow fever, and, in addition, buboes in the groin, axilla, and neck, made its appearance in the hilly country of Eusofzai, about forty miles north of Peshawur, and proved very fatal during that and the following year. A detailed account of the symptoms, as given by Dr. Forbes at Pali, Dr. Farquhar at Eusofzai, and Dr. Planck at Kumaon, showed all the symptoms of plague as described in Egypt and Europe, and all the varieties and modifications usually found in those countries. A typhus fever, with all the symptoms of yellow fever and occasional suppuration of the glands of the neck, appeared in Sangor in the year 1859, and in 1860 a virulent attack of the same disease broke out in the central prison at Agra, and proved fatal in 313 cases. During the same year a similar disease occurred in the central prisons of Meerut, Lucknow, and Allahabad, and proved fatal in 492 cases. In 1863 it appeared at Lahore, and subsequently in other prisons in the Punjaub. The disease still appears in the gaols, particularly in the Punjaub, the total mortality up to 1875 having been 5346. The general symptoms in the most intense cases of all these diseases were alike: extreme prostration of body and mind, with torpor, followed by death in twelve or twenty-four hours, leaving no local symptoms of bubo or jaundice, only a black liquid state of the blood. Buboes were early and prominent symptoms at Pali; they did not appear till the fourth up to the seventeenth day at Kumaon, whilst nearly all the cases proved fatal before the third day. In Eusofzai they did not appear till the eighth or eighteenth day. In the Doab, as in the subsequent gaol attacks, the glands in the groin were very rarely affected, those in the neck were more frequently affected, but this was not a prominent feature in the disease. In all these diseases the approach of the hot season checked the attack in the same manner as plague is arrested in Egypt and Turkey. This was shown in several interesting tables. These diseases are considered by all the medical officers to be contagious—i.e., capable of being transmitted from a patient to a healthy person; and all concur in the dissemination being essentially promoted by crowding, bad ventilation, and defective sanitary arrangements. None of the medical officers engaged in investigating the outbreaks of plague in Katywar, Pali, Kumaon, and Eusofzai were attacked by the disease; nor were any of the civil surgeons in charge of the sixty-eight gaols in the north-west provinces and the Punjaub, since 1860, attacked, with one exception, and he recovered. The native doctors and hospital attendants, more especially the sweepers, suffered severely in many instances. The opinion of the inhabitants of Kumaon of the contagious nature of the disease is shown by the practice of deserting the villages when the "bola" or bubo appears, and prohibiting the inhabitants of an infected village entering their houses. This principle guides the regulations of the Government of India for the removal of troops from cantonments and of prisoners from gaols on the outbreak of cholera or typhus fever. The result in saving life and diminishing the mortality amongst the European troops has been very satisfactory. Had the mortality from cholera continued during the last thirteen years at the same rate as it did the previous thirteen years, it would have amounted to 5·340, instead of 1·994, which actually occurred. The disease, which is now proving so fatal among the Russian troops in Armenia and Bulgaria, under the various names of spotted typhus, black typhus, and plague typhus, is probably induced by the same poison as plague, which produces the variety of local symptoms which are modified by season and temperature in India, and for practical purposes would indicate the same course of prophylactic treatment.

MEATH HOSPITAL, DUBLIN.—The following prizes were distributed last week to successful students in this institution:—First Senior Surgical Prize: T. R. Lingard. Second Senior Surgical Prize: L. Middleton. Junior Surgical Prize: W. Pike, C. Adams. First Medical Prize: T. Lecky. Second Medical Prize: A. Forbes.

Reviews and Notices of Books.

Dental Caries and its Causes. By DRS. LEBER and ROTTENSTEIN. Translated by H. CHANDLER, D.M.D. London: J. and A. Churchill.

DENTAL CARIES has been attributed by various authors to inflammation, the action of acids, electrolytic change, or the destructive agency of vegetable or animal parasites. Nearly ten years ago Leber and Rottenstein published a memoir, in which they tried to show that it was in great part the result of the development of the Leptothrix buccalis, a fungus always to be found in the mouth. In the work before us they give the results of their further investigations, which show the important part this fungus plays in the process. They describe the change in the enamel as consisting of a gradual softening and opacity, with a brown colouration, the prisms being irregularly split up and disintegrated. Granular masses of leptothrix are always seen on the surface of the enamel, and surrounding detached fragments, and they may hasten the destruction of the tissue; but the fungus is not met with beneath the surface passing into the firm enamel, and its influence is regarded as quite secondary. Exactly similar changes are produced by the solvent action of acids, which completely destroy a tissue of which the animal matter forms so insignificant a part.

In the dentine they have distinguished two stages of the disease. In the first—dry caries—the tissue loses consistence in a greater or less degree, and becomes translucent and of a brown colour. At this time the only histological change is a deposit of small calcareous particles in the dentine canals at the periphery of the altered patch. These have been regarded by Tomes and others as a conservative induration of the dentine to act as a barrier to the spread of the disease, and a manifestation of a vital process. But Leber and Rottenstein look upon these particles as precipitates of lime thrown down from the acid fluid as it passes inwards and is neutralised by the natural alkaline fluids of the tooth; they have been able to imitate it artificially. This change they regard as the effect of decalcification by acids acting upon the tooth from without, and it may be seen when there is still a layer of enamel on the surface. The second stage only sets in when the surface of the decalcified dentine is exposed by the destruction of the covering enamel at some spot. The authors attribute it to the development of the Leptothrix buccalis in the decalcified dentine. They describe the granular masses of the fungus spreading along (sometimes between) the dentine tubules and dilating and then destroying them, as neighbouring processes run together and detach fragments of dentine. They confirm Tomes's observations of the thickening of the walls of the tubes, but are unable to explain it satisfactorily; it is not the effect of acids. The action of acids is less destructive upon dentine than upon enamel, because the larger quantity of animal matter enables it to retain its form and structure when decalcified. The changes in carious cement, as far as they have been able to observe them, are analogous to those in dentine. The acids leading to the decalcification of the teeth are those of the food as regurgitated from the stomach, and especially those resulting from the fermentation of sugar in the food as derived from starch; the acid tartrate of potash in grapes is also a powerful solvent. Leptothrix buccalis is always to be found in the secretions of the mouth and about the teeth: it consists of granular masses of spores, which are sometimes seen to be actively moving, and in this state are the denticulæ of Ficinus, but are usually met with stationary; from these, stiff-jointed filaments are developed. The authors have never met with anything answering to the Protococcus dentalis of Klencke. It is evident that the best

wash for the mouth is one slightly alkaline, as it will neutralise the acid present; it will also destroy the fungus.

We gladly refer to the work itself for full details of the processes described, and a statement of the arguments bearing on the different theories mentioned, as it will well repay perusal. We cannot compliment the translator on the success of his effort; the rendering is in some places very awkward.

Industrial Chemistry. Based on Payen's "Précis de Chimie Industrielle," and edited by B. H. PAUL, Ph.D. 987 pp. London: Longmans. 1878.

THIS work, like some of the substances described in it, is of a composite character, being founded on a translation in part by Dr. T. D. Barry, of Stohmann and Engler's German edition of Payen's "Précis," considerable additions, especially in regard to the chemistry of the metals, having been made by the editor, Dr. B. H. Paul. The general plan and arrangement of the work are very similar to Dr. Ure's "Dictionary of Arts, Manufactures, and Mines," which last contains some articles that might have been advantageously introduced into Dr. Paul's treatise. We miss, for example, alkalimetry and acidimetry, both important in an industrial point of view, and their absence is the more remarkable as chlorometry is very well and fully given. The dyes and dyeing operations, again, generally are omitted, as are also calico-printing, photography, and many other processes. The book is divided into two parts, the first, occupying 600 pages, being devoted to inorganic, and the remainder to organic chemistry. The first part is evidently that into which Dr. Paul has thrown his best energies, and it contains a sufficiently full and accurate account of all the more important elementary substances. Water is described under hydrogen, and a table is given showing the composition of the waters of upwards of thirty rivers. This section might have been extended with advantage. The chapters on sodium and lead are remarkably full, and are illustrated by a large number of woodcuts, that on lead alone having no less than forty-three. Thus drawings are given of the roasting heap in the Lower Hartz and in Sweden; and of the various hearths for smelting, including the backwood hearth, the Scotch and American ore hearths, the slag hearth, the Spanish slag hearth, &c. The chapter on iron is also very complete.

It is to the second part, however, that most professional readers will turn, which is devoted to the substances derived from plants and animals: starch, sugar, bread, alcohol, wine and beer, oils and fats, candles, soap, caoutchouc, and gutta-percha. We shall describe briefly the mode in which the subject of sugar is dealt with as an example of the method of treatment adopted in the work generally. The section commences with an account of the different forms of sugar, and of their occurrence. Strawberries, it appears, contain 5·86 per cent. of their weight of glucose, cherries 10, white currants 6·40, and hothouse grapes 18·37; pineapples, on the other hand, contain 11·33 per cent. of cane sugar, apricots 6, and oranges 4. The compounds of sugar with lime and other bases are discussed, and this is followed by a description of the sugar-cane, which, when perfectly ripe, contains 18 per cent. of sugar. The cultivation and characters of the sugar-beet, the juice of which contains about 14 per cent. of sugar, is then given, with a full account of the method of preparing sugar from it adopted in France and Germany, clear woodcuts illustrating all the stages. In Havannah we learn that there is one cane factory capable of producing 125 tons of sugar per diem. In many factories the use of blood is now entirely dispensed with, though great care is required in the management of the filtration. Lastly, there is a subsection on saccharimetry.

The work is well got up, and will prove very useful as a book of reference.

OUR LIBRARY TABLE.

Revista Sperimentale di Freniatri e di Medicina Legale. Professors TAKBURINI, GOLGI, TAMASSIA, e MORSELLI. Anno iii., 1877; fasc. iii. & iv. Calderini. Reggio-Emilia. 1878.—This number commences by recording the death of the King, and this notice is followed by an article on Cerebral Syphilis, by Dr. Giuseppe Seppili, in which he particularly describes a hemiplegic form, reporting a well-marked case. Dr. S. Ventiori and Professor A. Tamburini give a contribution on the action of the Salts of Quinine in Intermittent Mental Disease, with a report of two cases in which it proved effective. To this succeeds an introductory section on the "Clinical method of Psychiatry," delivered in the University of Modena by Professor A. Tamburini. Then follow two papers on Variation of Temperature in the Insane, Dr. Riva recording various cases of its exaltation in progressive paralysis, and Dr. Seppili of its depression when associated with anæmia and cerebral œdema. Lastly, there is a paper on Cerebral Tuberculosis by Dr. Trebbi. We sometimes wonder whether the facts recorded in foreign works are noted with more care than the names of authorities. At p. 414 Dr. Hughlings Jackson's name is spelt "Huglings Iaskson," and at 472 "Hugphlings Jackson." Jaccoud becomes "Taccqoud"; Rosenthal, "Roshental," &c. Drs. Salmerini, Bonfigli, and Tamassia contribute letters or memoirs on Moral Insanity. Morselli gives a long description of the physical and moral character of Carlo Grandi, the child murderer; and Tamassia a study on responsibility in the insane.

The History and Progress of Surgery. By JAMES GEORGE BEANEY, F.R.C.S.E., Senior Surgeon to the Melbourne Hospital.—This is an address delivered on the occasion of the distribution of prizes in the class of Operative Surgery. In a brief and interesting manner some of the more important and marked improvements in the art and science of surgery are mentioned, while care is taken to show that some things that we often think of as new were more or less known to the ancients. Thus we are reminded that anæsthetics were employed in surgical operations nearly two thousand years ago, and specula were in use in Pompeii. Is is good to notice that at the antipodes there appears to be as earnest a desire to advance the science and perfect the art of surgery as in this more favoured land which we are accustomed to look upon as the centre of the universe.

Wiener Medizinische Blätter.—We have to chronicle the appearance of a new weekly medical journal at Vienna having the above title, and edited by Dr. Wilhelm Schlesinger. It is intended especially as a journal for practitioners, but is not wholly of a therapeutic character. The first number contains articles on the Treatment of Hernia, by Dumreicher; Chronic Spinal Meningitis, by Choustek; and the Processes of Thought in Aphasia, by Stricker. The second number contains an article on Claude Bernard, and articles by Ludwig, von Busch, and Hofmann. Both numbers are considerably above the average degree of interest and value of continental papers.

The Prospects of Surgery. By RUSHTON PARKER, F.R.C.S., B.S., M.B., Lecturer on Surgery, and Surgeon to the Stanley Hospital, Liverpool.—This is the introductory address given at the Liverpool School of Medicine last autumn. Recognising the great advances in anatomical, physiological, and pathological knowledge recently made, the author maintains that the great field now open to improvement is that of treatment, and urges that this must be first empirical. He claims for what he calls the Liverpool method of treatment of joints, that it has struck "the death-blow to the operation of excision."

THE LANCET.

LONDON: SATURDAY, MAY 11, 1878.

WHAT are the great objects of medical reform? They are scarcely, after all, to be spoken of in the plural number. We might rather ask—What is the great object of medical reform? It is this—To provide a machinery for securing that medical education shall be a real thing, or, at any rate, that the examination which is to license men to practise Medicine on Her Majesty's subjects shall be the same in each division of the kingdom; that it shall be higher than it is at present; and that it shall be the highest minimum examination practicable, consistently with filling the ranks of the profession. There is no doubt a limit, and one that can soon be reached, to the stringency of examinations for general practitioners; but no one will maintain that it has yet been reached. And the great object of all good legislation is to reach it, in the interest, first of the public, and secondly of the profession. It is of no use to inquire which of the existing minimum examinations comes nearest to a model minimum; all of them are much nearer a model minimum standard than they were a few years ago. But none of them are yet quite satisfactory, and there is the greatest possible variety in the tests applied, so that a candidate rejected at one board finds it easy to pass at another. There are, of course, numerous lesser objects to be aimed at in medical legislation; but the primary one is to secure the highest minimum examination possible, consistently with a due supply of medical men. If this be so, we have a ready and reliable test to apply to the Government Bill. It is a creditable attempt to complete the legislation of 1858, to supply all that experience has shown to be wanting in that legislation, and to amend all that is faulty. Let us judge it, then, by the test we have described. Does it provide machinery for securing minimum examinations in each division of the kingdom, that shall answer the double description of being uniform and as high as is practical? Certainly not. Let us demonstrate that it does not. It leaves permissive the formation of Conjoint Boards, and, apart from the wholesome pressure applied to our Scotch friends, we know that they have no wish to proceed further than they have done in the Conjoint direction. The Duke's Bill contemplated, indeed, the formation and completion of the English Conjoint Scheme, which would have, for five years at least, terminated the separate action of the English bodies, and brought up the minimum licensing standard of England. But it is already certain that if the Bill passes in its present form, the Conjoint Scheme in England will fall through. So that it will secure the continuance of the individual freedom of all the existing nineteen bodies, and we shall have nineteen different degrees of severity of examination, varying from the most euphemistic and "modified" examination suited to an apothecary fifty years ago, up to the standard of the University of Cambridge or of London. The lowest of these, the most tender and the most accommodating—to use the technical word, the most "modified"—will admit to the Register as readily as the highest. The person registered, it is true, will have to pass two examinations; but the initiated know that this does not mean two different examinations, but two almost identical ones, embracing practically the same subjects, and possibly both of the same tender and modified character. With nineteen bodies, then, whose diplomas are of equal ability to give admission to the Register, though obtained with very different degrees of ease, the idea of uniformity of test must be abandoned.

But we shall be told that Clause 14 empowers the Medical Council to frame "rules for regulating the examination of persons desiring to obtain a double qualification within the meaning of this Act, and determining the subjects thereof and the standard thereof, and the standard for passing and the method of conducting the same, and providing for the superintendence thereof by such Council." Well, this is a provision that ought to find a place in any Medical Bill, and which seems to us essential to any machinery for securing uniformity in the *examinations for qualification*. If we cannot have *one Board* for the whole kingdom, which many people think we should and could have, we must, at any rate, have a central authority capable of judging of what constitutes uniformity, and of enforcing it, if not in the course of study, at least in the severity of the examinations. One of the features of THE LANCET Bill, drafted and published in 1870, was to give a similar power to the Medical Council. But THE LANCET Bill did not leave nineteen bodies to be regulated and supervised as the Duke of RICHMOND and GORDON'S Bill does. It gave power to the Council to create three independent examining boards, one for each division of the kingdom, to be called the National Medical Examining Board. More than this, it so modified the constitution of the Council as to make it more fit for the great national duty allotted to it. The Duke of RICHMOND'S Bill, we are glad to say, takes the same view of the duty of the Council as ours did; but it does not make the Council fit for discharging it by necessary changes in its constitution. The reception which Clause 14 has encountered from the Council ought alone to convince the Duke of RICHMOND of the unsatisfactory constitution of that body. Could anything be more unreasonable, when a great effort is wanted to secure uniformity of examination throughout the country, than for the Medical Council to decline the function of framing rules determining standards of passing and methods of conducting examinations? How otherwise is uniformity to be secured? What greater compliment could the Duke have paid this body? Yet the compliment is declined. The Council is made up of corporations. It is an incorporation of corporations, and the corporate spirit is so predominant in it that when a great national duty is to be done by it, it declines to do it. There cannot be a stronger proof of the need of change in the constitution of the Council. The work it declines to do must be done either by the Council or some body that shall supersede it. We come irresistibly to the conclusion, while approving of the rejected Clause 14, and regarding it as an essential feature of any Bill for the purpose, that as the measure stands it cannot possibly secure uniformity and elevation of minimum examinations in the three divisions of the kingdom, and should not be accepted in its present form.

EVER since the clinical features of diabetes have been carefully observed, physicians have been startled and puzzled by the frequency with which, in that disease, death comes unforeseen and unexplained. A patient, apparently in his usual condition, suddenly becomes drowsy and dull; the stupor deepens to coma, and the coma to death. Upon the cause of such death post-mortem examination throws no light. Symptoms of cerebral depression, such as these, in the absence of a cerebral lesion, naturally suggest the idea that a narcotic poison is at work, and it has been thought by some that they may be due to the addition of uræmic poisoning to the diabetic state. In extremely rare cases the symptoms do resemble those of uræmia so closely as to make it probable that this condition in them does actually exist. In the vast majority of cases all the characteristic symptoms of uræmia are absent, and the theory that it is the common cause of diabetic coma is untenable.

In some cases the sugar in the urine has undergone a remarkable diminution on the appearance of the toxæmic symptoms, and it has been suggested that they may be due to a sudden arrest of excretion, and a retention of sugar in the blood—a condition of extreme glycohæmia. In the opinion of CYR and others, this is a reasonable explanation of some of the cases of diabetic coma, but it is certainly inadequate to explain the majority, since in many no such arrest in the excretion of sugar is to be observed. Too much weight must not be attached to such occasional disappearance of sugar from the urine in this condition. So profound an alteration in all the functions of the central nervous system as must accompany the coma may well have, as its consequence, an arrest of the customary formation of sugar. Moreover, as far as it has been observed, the cessation of the excretion of sugar may be explained on another theory, which affords a more adequate explanation of the phenomena, and has been widely received as satisfactory.

A peculiar odour has long been noted to be occasionally given off by the breath, the urine, and even the fæces of diabetics, and a similar odour has been noted many times in the body after death. Thirty years ago the post-mortem odour was compared by ROTHER to vinegar, and the odour of the breath, by BRAND, to the smell from persons who had recently inhaled chloroform, while BERNDT compared it to that of beer. It was thought by PETTERS to resemble that of a mixture of chloroform and acetic ether or aldehyde, and was noted by him to be intense in all the tissues of the dead body. It was natural to regard this odour as the proof of the formation of a substance in the body by some decomposition of the sugar circulating in the blood, and to associate it with the symptoms of cerebral depression. The character of the smell led LERCH, in 1853, to suggest that it was probably acetone, a volatile ethereal liquid allied to chloroform in its properties. PETTERS endeavoured to test this opinion. By fractional distillation of the urine of a patient who had died of diabetic coma he obtained a clear, highly refracting, inflammable liquid, having the boiling-point of acetone, and giving the same reactions—neutral, browning with sulphuric acid, yielding a brown precipitate with caustic potash, and not reducing oxide of silver. From the blood the same substance was obtained in a similar manner. The observation has since been confirmed by several authorities. Acetone has even been said by KAULICH to be a frequent product of the acetous fermentation, which may take place in the stomach of dyspeptics, and he believes that it may arise by fermentation from grape-sugar. ANTHRON, indeed, obtained, by the fermentation of glucose, a liquid which LERCH pronounced to be acetone; and KAULICH argued that, although the ordinary vinous fermentation of glucose yields only alcohol and carbonic acid, yet since, under other circumstances, lactic and butyric acids may be obtained from it, it is conceivable that acetone may also be a product of its fermentation, because, by a decomposition theoretically simple, grape-sugar may break up into acetone, acetic acid, carbonic acid, and water.

These opinions have been lately confirmed by Dr. B. FOSTER, who not only has found acetone in fresh diabetic urine, but has proved that acetone is capable of producing the post-mortem appearances found in diabetic coma—viz., a thick fluid state of the blood, which presents a milky opacity, due apparently to the destruction of the red blood-corpuscles, and he has, he believes, prevented death in diabetic coma by the administration of agents which possess the power of arresting fermentation.

In spite of these facts, however, we must still doubt whether the doctrine of acetonæmia is established beyond dispute. They certainly render it highly probable that the condition of diabetic coma is due to a poisonous substance of the acetous series, which is formed from, or perhaps replaces, sugar in the blood. But it is impossible to peruse the descriptions given by the several observers of the character of the odour perceived in the breath, urine, or tissues, without being struck with the variations in their statements. One compares it to chloroform, another to beer, another to sour beer, another to vinegar. This difference suggests that the substances in the blood may not always be the same. The observations of KAULICH and others on the occurrence of acetous changes in the contents of the stomach in dyspeptics point to the probability that the odour of the breath may be in part due to fermentation within the stomach, under the influence of the altered blood, and a distinct odour of acetone in the breath is thus scarcely proof that the substance exists as such in the blood. So, too, the rapid transformations of unstable compounds which occur in the tissues after death, and in the urine after secretion, necessitate caution in inferring that a compound found in either existed also in the blood during life. The circulating blood may contain only some substance capable of yielding acetone, and not acetone itself. That in some cases this is true is shown by an observation of RUPSTEIN. He found that, by fractional distillation, a liquid having the odour and boiling point of acetone could be obtained from urine, and his observation has been cited in support of the doctrine of acetonæmia. But he found that, although the urine after standing evolved an odour of acetone, no such odour could be detected in the urine when first passed. On the other hand, he found that it then contained a peculiar acid, which has been investigated by GEUTHER — diacetic acid. On boiling, or after standing for a considerable time, the urine ceased to give the reaction of this acid, and acquired the odour of acetone. This acid will break up, by assuming two molecules of water, into acetone, alcohol, and carbonic acid; and RUPSTEIN suggests that this is what takes place out of the body, and speculates that the same decomposition may

take place in the blood. The same acid was found in the urine in another case by KERNIG.

Another question remains: Is the presence of acetone in the blood an adequate explanation of the phenomena of diabetic coma? Many authorities—SENATOR, LECORCHÉ, CYR—assert that it is; and, as we have already mentioned, FOSTER has shown that it produces a similar pathological condition to that discoverable after death from diabetic coma. But the evidence from experiment is not altogether corroborative of the view. We are chiefly indebted for information on this point to the experiments of KUSSMAUL, who found that the effects of acetone resembled in the main those of alcohol. But, however analogous to the stage of stupor in alcoholic poisoning the phenomena of diabetic coma may be, a preliminary stage of excitement, such as is so frequent in alcoholic poisoning, is, as a rule, absent. Much weight cannot, however, be laid on this point. It has not, for obvious reasons, been practicable to make experiments upon man which afford a very close parallel to the phenomena of disease. KUSSMAUL has long been in the habit of using acetone as a remedy for dyspnœa, and has given a drachm or a drachm and a half daily without any ill effect. The subcutaneous injection of about twelve grains of pure acetone caused no other effect, in man, than a transient pain; and it required at least a drachm to produce toxic effects on a rabbit. It is clear, therefore, that, if diabetic coma is really acetonæmia, a very large amount of acetone must be generated in the system before the poisonous effects are produced. There is no doubt an adequate source for a large supply of acetone in the saccharine substances which pass through the blood, but the process by which so large a quantity could be generated is very difficult to conceive, and it is equally difficult to understand that the system can be so saturated with acetone without its characteristic odour being in all cases obtrusive. While temperature may intensify the odour by increasing the volatilisation, such a quantity of acetone as must be present would certainly be recognisable at lower temperatures, and the presence or absence of pyrexia can scarcely account for the presence or absence of the smell of acetone.

The conclusion, then, to which we are led is that while there is strong evidence that diabetic coma is, in many cases at least, accompanied by, and probably due to, the formation in the blood of substances of the ethyl-acetic series, sometimes capable of yielding acetone, there is not yet sufficient evidence that the symptoms are due to the presence of acetone in the blood to justify the designation of "acetonæmia," and until the theory rests upon stronger evidence, it were better not to use a term which is certainly not urgently needed, and which further research may demonstrate to be inaccurate.

The case of DODWELL, the clergyman who fired at the Master of the Rolls with a view to bring his wrongs—real or imaginary, actual or exaggerated—before the public, is so remarkable that we think it will not be considered unreasonable to ask the special interference of the Secretary of State for the removal of certain causes of distrust and dissatisfaction which too certainly exist. It must be assumed that the judicial proceedings culminating in the acquittal of the prisoner on the ground of "insanity," and an order for his confinement as a lunatic during Her Majesty's pleasure, have been good in law. Meanwhile it is beyond question that they were altogether exceptional in their character, and not such as the medical profession, or, we believe, the public, can clearly comprehend. It is a new and disquieting fact that an accused person may be judged irresponsible on the ground of mental disease, and consigned to an asylum for criminal lunatics, without medical examination, or professional evidence produced at the trial! In the interests of justice, not less than of society, this faulty, if not erroneous procedure, ought to be amended. Even a magistrate remands his prisoner when unsoundness of mind is alleged, and orders an examination by the police-surgeon. Surely it is not to be understood that a judge can put the issue "sane or insane" to a common jury, without the evidence of a single expert, and accept their finding as final, in such form that the court above must perforce adopt the judgment?

We have throughout this case abstained from expressing any opinion as to the mental condition of the prisoner. There was no evidence at the trial on which to base a judgment, and nothing that has since transpired can supply the deficiency. It is perfectly well known to psychologists that the existence of "a motive" is no proof of sanity. The insane, even those who are the subjects of formulated delusions, often assign intelligible, and even highly rational, motives for their conduct. Everything in this case probably turns upon the question whether DODWELL was the victim of a *morbid* sense of his grievances. A perception of the wrongs done to a man may be intensely oppressive or acutely irritating to his mind, without producing a diseased state. On the other hand, by long dwelling on a sorrow or disappointment the intellectual and moral faculties may be deranged or disorganised. It is impossible without a medical examination to conjecture which of these two conditions obtained in the case of DODWELL. It is known that he had been long labouring under a keen sense of his misfortunes when he committed the act for which he was tried, and it would certainly seem to have been an essential step in the judicial process to place the existence of disease beyond question before an acquittal on the ground of insanity was directed or accepted. In this instance the judge left the issue to the jury, and without a particle of professional evidence.

The case can scarcely be allowed to remain where it is. After what has been done in the matter, the appeal now lies to the Secretary of State, and we have no ground to ask more than that a special inquiry should be instituted by skilled examiners who are not already committed to any opinion. So far as it is possible to form an independent notion of the case on the facts which have been stated, there is nothing to incline the feelings either way. If the prisoner was sane, he ought undoubtedly to have been severely punished, and it would be greatly to be deplored if, through miscarriage of justice, the crime should go unavenged. Assaulting a minister of justice is one of those offences against which society, in the interests of public order, needs to set its face as a flint, and we are not prepared to say that any term of imprisonment would have been too prolonged. If, meanwhile, this man was, as it is supposed, the victim of a morbid state, whether he acted on impulse or with long-considered motive, he has

been properly placed at Broadmoor. All we ask is justice—which has not yet been done in the case, because the prisoner has been acquitted on the ground of insanity without any evidence that he is insane. It may be replied that there was "evidence"—the evidence of the act committed. We have no hesitation in asserting that nothing which came before the Court and jury, or has since been made public, affords adequate ground for the conclusion that the deed performed by DODWELL was inconsistent with the hypothesis of perfect, though perhaps eccentric, sanity; for example, the writing on the paper used as wadding! We look in vain for light on the mental condition of this man. Grave matters of interest agitating the public mind, for the moment, divert attention, but the question will be revived, and, because these too frequently occurring disputes about the sanity or insanity of persons who commit acts injurious to the public peace tend to weaken the general respect for what claims to be full and impartial justice, it should be settled effectually and without unnecessary delay. It is a strange plea this allegation of sanity, set up on behalf of a prisoner who has been acquitted of a grave charge on the ground of insanity; but it is a strange case altogether, and perhaps the strangest circumstance connected with the event is the unwillingness which has been shown to allay the public anxiety so unaccountably stirred.

WE learn that the ports in the Adriatic, and generally in the Mediterranean, have been thrown into a paroxysm of alarm by the reported appearance of plague in Trieste. The origin of this report appears to have been in the first instance obscure, but it was not the less mischievous on this account. At length the report was traced to Venice, and to a not easily justifiable action on the part of the sanitary authorities there. These authorities, it would appear, had received information that "petechial plague" had appeared at Trieste. Whereupon, rushing to the conclusion that the disease designated by this term must be true plague, they immediately issued instructions designed to guard the city and port from this formidable malady.

We have no doubt the disease that has been designated "petechial plague" is the "petechial typhus" which has been for some time scattered broadcast in Turkey, and the importation of which into Trieste can readily be conceived. Even in Venice a confusion of the two diseases *plague* and *typhus* is hardly pardonable, more especially as there has been abundant recent opportunity of becoming familiar with the distinctive characters of the two diseases. Typhus, as it has shown itself among the Russian and Turkish troops during the recent war, and as it may now be studied among the civil populations at the seats of war both in Europe and Armenia, is a sufficiently familiar disease, and is properly named "petechial." Plague, as it has recently shown itself in North Africa, Mesopotamia, and Persia, has in no instance been confounded with typhus by those who have observed it, nor could the name "petechial" be justly given to it. That the Venice sanitary authorities should have made the blunder, which we feel assured they have done, in confounding *typhus* with *plague*, must be taken as significant of the sensitiveness existing in the ports of the Levant as to the now long-continued existence of plague in the further East.

We reported a short time ago that the existence of plague in Bucharest had been whispered. Here the ground for uneasiness arose from the occurrence of glandular swellings in two or three patients sick of typhus. But these cases were quite exceptional in the midst of a great typhus outbreak, and the fear of bubonic plague was dissipated before it had time to get abroad.

The dearth of news as to plague from Mesopotamia and from Persia justifies the hope that the year may pass without any formidable extension of the disease in these countries; and the journey of the Shah from Teheran to the Russian frontier of Transcaucasia makes it pretty certain that the route travelled by his Majesty is free from the disease.

Annotations.

"Ne quid nimis."

THE COLLECE ELECTIONS.

THE forthcoming election of members of the Council of the Royal College of Surgeons is exciting an unusual degree of interest. Although the election will not take place until the first week in July, there are many ominous signs of a coming struggle. The retiring candidates are Mr. Erasmus Wilson, Mr. Henry Lee, and Mr. Barnard Holt; while the probable or presumptive candidates are, in order of seniority as Fellows, Mr. Joseph Lister (1852), Mr. Richard Barwell, Mr. Thomas Bryant, Sir Henry Thompson, Mr. John Wood (1853), and Mr. Henry Power (1854). In addition to these, there are two or three others whose names have been mentioned. We understand that a large number of Mr. John Gay's supporters have expressed a desire to return this gentleman to the Council, in which he, as an independent member, is known to have done good service. Mr. Lund, of Manchester, a Fellow of 1863, has also expressed his willingness to come forward in the interests of the provincial Fellows. Mr. Callender was spoken of as a likely candidate, but he has declined to be nominated.

Whether there will be, or ought to be, more than three vacancies next July is still an undecided question. We have on several occasions pointed out that sect. 7 of Charter, 15th Vict., declares that "If any member of the Council shall at any time after his election cease to be in the *bonâ fide* practice of his profession of a surgeon, or shall practise as an apothecary, he shall thereupon cease to be such member of the Council, and shall forfeit all his rights and privileges as such member thereof; and it shall be lawful for the Council of the said College to declare the place of such member in the Council to be vacant." There are several members of the Council who have ostensibly ceased from the *bonâ fide* practice of their profession of surgeons, but they have hesitated to retire because they have been unable to settle in their own minds what the term "*bonâ fide* practice" means. Is there no member of the Council who has the public spirit to enlighten them?

THE CONVOCATION OF THE UNIVERSITY OF LONDON.

THE next meeting of this body will take place on Tuesday next, at the University building in Burlington-gardens, when the members will be asked to discuss and give their votes on some questions of more than ordinary interest. They will be invited to accept the new Supplemental Charter admitting women to the degrees of the University; but this is now a purely formal matter of business. The

interest will centre in the long report of the Annual Committee which will next be presented for reception. This report is an elaborate document, dealing mainly with the two distinct questions of the relation of the University to the affiliated colleges and to education and learning generally, and the constitution of the Senate. Convocation will be asked to urge on the Senate the necessity of revising the list of affiliated colleges, which now comprises about forty heterogeneous institutions, some of great importance, as University, King's, and Owens Colleges; others scarcely known, such as Trevecca College, Breconshire, and the Working Men's College, London. It has always been a matter of some doubt to us as to what is the advantage of being an affiliated college, when candidates are admitted to the degrees in Arts, Science, and Laws without any evidence of collegiate training whatever. It is desirable that those colleges which are left on the revised list should be brought into closer connexion with the University, but the proposal which is to be brought forward with this object is obviously quite inadequate. An invitation to them to communicate, by delegates or in writing, with the Senate, and facilities for deliberating together on the subject of examinations, are important steps forward, but they scarcely satisfy the complaint of Owens College and other bodies, that they have to adapt their teaching to the requirements of a body on which they are not represented. It is obvious that there is an important section of the Annual Committee which is by no means satisfied with the position of the University as a State-supported examining body merely, for it is also suggested in the report that the University should take advantage of such opportunities as may present themselves of promoting, by the institution of University chairs or otherwise, the cultivation of such higher or less usual branches of study as can be more conveniently or more efficiently taught by a central body. If the University were to undertake such duties as are here pointed out, its relation to education and to the higher colleges would be completely changed. We have repeatedly stated our opinion that examination is only a very small part of the business of a real university; but we fear that, even if Convocation is willing to allow that the past policy of the University may possibly have been a mistake, the Senate will hardly be persuaded to look at it in the same light. The resolutions dealing with an increased representation on the Senate are sure to have the support of almost every member of Convocation, and can scarcely be any longer opposed by the Senate.

THE GROCER'S LICENCE.

THE position in which a recent decision by Mr. Justice Lush leaves the question of magisterial responsibility in dealing with applications for the grocer's licence is most unsatisfactory. We are bound to assume that the interpretation placed on the statute is accurate; in any event it is, so far, final, and will rule the practice of justices. That being so, it is impossible not to feel that the sooner the law is revised the better for public safety. If magistrates have no power to refuse a licence except on the grounds set out in Acts, the veto entrusted to them is a vain privilege. The expediency of licensing a public-house is to be determined on general considerations of public prudence; unless the licensing of a shop where intoxicating drinks can be sold in single bottles is to be judged from the same stand-point, the task should be confided to some other authority. In short, we fail to see why the justices are required to interfere between an applicant and the revenue. It must be assumed that anyone keeping a shop is sufficiently respectable to be entrusted with the power of selling drink, since the law, as interpreted by Mr. Justice Lush, enjoins the magistrates to allow no consideration to influence them except what is personal to the applicant. The simplest course under the circumstances would probably be to sell these licences to any householder, or, looking to the interests of the revenue, why not let the officer of Customs hawk them about? It is sufficiently obvious that, as the law stands, the chief, if not the only, concern felt in the matter is to secure a good return. It is clearly of no moment that this trade affords a special facility for secret drinking. Looking to the facts, we doubt whether it would not be as well to go one step further, and institute a licence, procurable for a few shillings, which should have the effect of an "indulgence," and empower its holder to gratify his thirsty propensities unchecked during the term of the permit. This would probably prove a source of revenue scarcely inferior to the grocer's licence, and we question whether it would do greater mischief.

TRAINS IN MOTION AND STATION PLATFORMS.

THE melancholy death of Sir F. Goldsmid from injuries caused by stepping out of a train while in motion and falling between the carriage and the platform should call attention to two evils. Waterloo has the unenviable notoriety of being the worst of the metropolitan stations. The platforms are generally inconvenient, and, when they stand some two feet or more below the steps of the carriages, necessarily dangerous. Meanwhile, this state of things is not uncommon in the stations around London and throughout the provinces. It would seem a simple and obvious measure to require the adoption of better arrangements; but the evil and its remedy have been recognised for many years past, and nothing is done. What ground or reason have we to hope that more active steps to lessen the peril will be taken now that a member of the legislature has met his death in consequence of a defective state of matters which has been long perceived? It ought to be wholly impossible for an accident of this description to happen. Nothing is easier than to render a station platform perfectly safe by bringing the level up to within an inch or so of the floor of the carriages, thereby dispensing altogether with the steps. The platform should, in fact, overhang the steps of the carriage, and there would be no difficulty in making it do so. If this construction were adopted, the worst that could happen to any passenger misguided enough to leave a carriage while in motion would be to be thrown down, and possibly rolled, or be dragged, a few yards on a level surface. The folly of attempting to expedite matters by jumping out of a train in the direction it is going would be unaccountable, but that the delay caused by the crush at the ticket-gate is often of moment to the traveller. All this pressure might be obviated by placing a few additional men on duty at crowded stations and multiplying the exits, but these reforms would entail expenditure, and from this the companies are averse, and what is known as "the railway interest" is overwhelming, so that the Legislature cannot be expected to interfere.

SANITARY RESPONSIBILITIES ON THE THAMES.

The Times of the 29th ult. contained a communication indicating great want of knowledge as to the sanitary laws that now regulate the metropolis. A case of small-pox was found on a barge between Lambeth and Westminster, and a Mr. Morgan (the correspondent in question), having been called in to see the case, requested the Westminster Board of Works to remove the patient, and when told that they had no jurisdiction, communicated with two other authorities unsuccessfully, and eventually hit upon a fourth. This proved to be the Port Sanitary Authority, under whose directions the patient (then dead) was removed, and the vessel fumigated. The letter in question was very ably answered two days afterwards by Mr. J. Harris, clerk to the Westminster Board of Works. So much has been done and written lately relative to health matters in London and else-

where, that it would seem hardly necessary to remind any well-informed person of the existence of the Public Health Act, 1875, which shows that the port of London is, by a special clause, in the charge of the Corporation of London. The port of London comprises the river Thames from Teddington-lock to a point not far from Ramsgate, all the tributaries between Teddington and Gravesend as far as the tide flows, and all the docks, including the land spaces within the walls of the docks. The Port Sanitary Committee of the Corporation have a medical officer of health and inspectors, and a steam launch, that is constantly occupied in some part of this very extensive district. Official notices relative to the work are posted on all the steamboat piers between Chiswick and Gravesend, and many other official announcements of various kinds have appeared elsewhere during the past three years; so that, according to our opinion, it is time that most intelligent Londoners should know "who is the responsible authority" (for sanitary matters) on the Thames.

THE PUBLIC HEALTH ACT (1875) AMENDMENT BILL.

THE report of the Select Committee on the Public Health Act (1875) Amendment Bill has just been issued. The essential purpose of the Bill is to provide that it shall be the duty of a sanitary authority to see that every occupied house within its district has within a reasonable distance a supply of wholesome water sufficient for the consumption and use for domestic purposes of the occupiers of the house. Evidence on this particular point was taken, especially from Dr. Ballard, one of the medical inspectors of the Local Government Board, but the attention of the Committee was chiefly given to certain suggestions for the further amendment of the Public Health Act, and these suggestions are alone dealt with in the Committee's report, and amendments relating to them are added to the Bill. We may take it that the original provisions of the Bill are accepted by the Committee, and that to this extent its passage through Parliament may be facilitated, and the prospects of its becoming law more hopeful. It will be an indelible scandal on the present Parliament if the original principles of the Bill are not accepted.

The suggestions which mainly occupied the attention of the Committee had in view the amendment of the law for the following objects—namely, (1) to enable sanitary authorities to take water compulsorily, their power to do so having been called in question; (2) to require a sanitary authority to make an equitable charge for the cost of water-supply on the property benefited by the supply, instead of charging it on the rates; (3) to regulate the relation of the water company or water authority; and (4) to make further provision for rural districts from which the water companies or water authority take the water or through which the mains pass. Each of these suggestions touches difficulties which have been experienced in the administration of the existing public-health law as to water-supply, and the Committee suggests that amendments should be introduced into the present Bill for their removal.

With regard to these several suggestions the Committee recommend that the Local Government Board should have power to issue Provisional Orders, which, when confirmed by Parliament, would confer upon the local authorities the power to purchase water rights compulsorily, such Provisional Orders to put in force the Water Clauses Act, 1847. That in all cases where the local authority provides a water-supply, water-rates or water-rents should be charged upon the consumers, the maximum of charge to be two shillings in the pound on the rateable value of the house, and the minimum sixpence in the pound. That a sanitary authority should have power to guarantee 10 per cent. for three years of the cost of the mains and pipes to be laid down by the water company, or 7 per cent. until the water-rates and water-rents are sufficient to pay the company the proper returns on the cost of the mains and pipes. That certain ambiguities of Section 52 of the Public Health Act, 1875, shall be removed, and the Committee expresses approval of certain suggestions for augmenting the powers of sanitary authorities as to water-supply within the areas of water companies. Finally, that where a company or corporation goes to a rural district for water, Parliament, before giving the powers sought for, should be informed of the wants of the district from which water is proposed to be taken, or through which the main passes, in order to make provision for these districts.

THE PARIS EXHIBITION AND PUBLIC HEALTH.

THE advent of numerous strangers in Paris to visit the Universal Exhibition has suggested to the prefect of police the propriety of addressing a special circular to the mayors of the twenty arrondissements, reminding them that they are responsible for the preservation of public health. This circular cites all the laws in force relating to public hygiene, and conclusively proves that the municipal authorities are invested with extensive and ample powers. The police, acting under their orders, may at any moment enter any hotel or lodging-house and ascertain, by personal inspection, that there is no infringement of the laws of health. The law, however, is not so emphatic with regard to private dwellings, unless the landlord admits strangers into his house. Nevertheless, so far as English visitors are concerned, the law gives all the necessary powers for their protection. The real difficulty rests with the ignorance or indifference of the French people to some of the most important measures necessary for the preservation of health. The mayors and the sanitary committees are especially recommended not to neglect any complaints they may receive; but the fundamental fault rests in the fact that French people will not complain against dangers which they are often too ignorant to recognise or too indolent to remedy. Visitors will do well therefore to take these matters into their own hands. It is only necessary for them to address a written or a verbal complaint to the mayor of the arrondissement in which they may be residing. This will ensure the police inspection of objectionable drains, and the probable and prompt removal of nuisances; but in the all-important matter of disinfection after fevers &c. there is no machinery extant for the enforcement of this indispensable precaution. The visitor to Paris must take his chance of occupying a room in which his predecessor may have left germs of disease.

DEATHS FROM STARVATION AND WANT.

A RETURN has been made to Parliament of all cases upon which, during the year 1877, a coroner's jury has returned a verdict of death from starvation or death accelerated by privation. From this we learn that there were seventy-one such deaths within the year. Of these twenty-two were children of two years of age and under. Of the remaining thirty-seven cases one was ninety years of age, and twelve others were sixty or more. In comparatively few cases was want or privation the sole or chief cause of death, these being generally mentioned (except in the case of infants) as tending to cause a fatal termination to disease. Among those who are not mentioned in the verdict as suffering from any organic disease we find the unfortunate Harriet Staunton, aged thirty-six. In eight cases the verdict was one of effusion either of blood or serum on the brain, accelerated by privation. The return does not always give all the information necessary for a proper understanding of the case. Thus Case 25 in the return for Central Middlesex is that of a lad aged eighteen, and the verdict

is returned as "Exhaustion accelerated by want of nourishment, and from the mother and deceased refusing to enter the workhouse." The terms of the verdict are "Starvation while suffering from scrofulous disease." It is obvious that a return of this kind is misleading, and we trust there has been no suppression of important facts in other cases.

ATMOSPHERE OF THE ROYAL ACADEMY.

THE problem of ventilating a crowded room or set of apartments would appear to be as far from practical solution as ever it was. Anything more oppressive and generally disagreeable than the atmosphere of Burlington House during the earlier weeks of the exhibition at the Royal Academy it would be difficult to imagine. The reeking and vitiated air from that terrible den, the refreshment-room, is conducted into Room 2, and thence spreads over the establishment; while the lungs and bodies of a dense mass of folk—who are none the less mutually offensive in the matter of carbon and its compounds because they happen to be lovers of the æsthetic—give off exhalations which complete the noxious character of the air visitors are condemned to inspire. Some woful specimens of wall furniture afford convincing proof that nothing will induce the Royal Academy to look beyond the immediate interests of its own members; but steps should certainly be taken to prevent injury to the health of the public who frequent the exhibition. If the refreshment-room were removed to a less obviously objectionable position, and the ventilation of the galleries committed to some person who is *not* an expert in the art, there would be a manifest improvement. In short, the system adopted constitutes a public nuisance, and ought to be remedied, even at the cost of closing the exhibition for a few days while the necessary changes are carried out.

IS THERE A MUSCULAR ELEMENT IN THE FIRST SOUND OF THE HEART?

THE views entertained by physicians and physiologists as to the cause or causes of the first sound of the heart are well known to be both varied and conflicting. Many attribute it solely to the closure of the auriculo-ventricular valves, whilst others include other factors, although they differ as to what these factors are, and, even when they agree therein, give different estimates of their relative importance. Most physiologists, including the London, Dublin, and Philadelphia committees, who specially investigated the question, acknowledge a muscular element, but authorities whose opinions are entitled to every consideration, such as Michael Foster and Guttman, are disinclined to accept this view. Any addition to the evidence which we already possess on such an important point in cardiac physiology is, therefore, of exceptional value. Since Wollaston's experiments in 1809 the sound produced by muscular contraction has received much attention from physiologists, and especially from Helmholtz, who has shown that its tone depends upon the number of vibrations performed by the muscle. Forty years ago Dr. C. J. B. Williams made numerous experiments on the heart, which led him to the conclusion that the first sound was produced by muscular contraction, and Ludwig and Dogiel heard it on auscultating a pulsating heart which had been emptied of its blood. The possibility of valvular tension, however, was not removed in their experiments, for the columnæ carneæ and valves were left intact. To aid in the solution of this problem, Professor Arnold, of the University of the City of New York, has made a new series of observations, which are described in the last number of the *New York Medical Journal*. Two of these are extremely interesting, and prove beyond doubt that the muscular element must not only be included among the causes of the first sound, but that it is a principal factor, although others may, and probably do, take part in its production. As the two experiments were practically identical, we need only describe the first, or No. 10, in the series. A medium-sized dog was curarised, the heart exposed, and artificial respiration maintained. The heart-sounds were clearly heard, with single and binaural stethoscopes applied directly to its walls. The heart was then rapidly cut out, and a sharp knife so introduced through the auricles as to destroy the chordæ tendineæ of the auriculo-ventricular valves. That this was effectually done was proved by an after-examination. On applying the stethoscopes to the organ, which was still contracting, the first sound was distinctly audible, and was heard not only by the operator himself, but also by so experienced an auscultator as Professor Loomis. When we consider the pathology of fatty degeneration of the heart, and the effect this disease must have on the contraction of its muscular walls, the value of such a definite decision of the question whether there is or is not a muscular element in the first sound of the heart, will strike every physician as almost impossible to overestimate.

THE MAIN-DRAINAGE OF OXFORD.

AFTER many difficulties and interruptions the main-drainage of Oxford at last approaches completion, and three-fourths of the houses of the city have been already connected with the new system of sewers. What has still to be done is to connect the remaining houses with the system, and to complete the arrangements at the outfall for pumping and irrigation. Mr. W. H. White, the engineer to the Oxford Local Board, who designed and executed the works, gave an interesting account of the system of sewerage adopted at a recent meeting of the Ashmolean Society, and this account, with plans and sections, has been published by Messrs. Carter. The "separate system" of sewerage has been adopted in Oxford, modified so as to meet the peculiar requirements of the city—that is to say, that houses within the city which are already provided with single drainage are permitted to communicate with the sewers without disturbance of that drainage, but the rainfall from the streets and roads and front part of the roofs of the continuous houses and buildings, and of detached houses, churches, colleges, and other public buildings, is entirely excluded. We congratulate Oxford on the near completion of this great work, which redounds to the highest credit of Mr. White, and which gives promise of a very different sanitary history for the city from that which it has hitherto possessed.

THE LONDON SMALL-POX EPIDEMIC.

IT is now little short of two years since the present epidemic of small-pox in London commenced, and the 60 fatal cases registered in the week ending the 4th inst. raise the total deaths from this disease since the end of June, 1876, to 4118. One of the most remarkable features of the present metropolitan epidemic is the comparative immunity from the disease which the rest of England is enjoying at the present time. During the first three months of this year 716 deaths from small-pox were registered in England and Wales, of which no less than 627 occurred in London and its outer ring of suburban districts, 21 in Harwich, 11 in Gravesend, 7 in Tunbridge, and 5 in Hitchin; in the rest of England and Wales only 45 deaths from small-pox were registered during the quarter.

On Saturday last the Metropolitan Asylum Hospitals contained 834 small-pox patients, against 854 and 824 at the end of the two preceding weeks. The number of new cases admitted to those hospitals during the week was 200, against 260, 228, and 191 in the three preceding weeks. Thus no less than 879 new cases of small-pox were admitted for treatment to these hospitals within four weeks, in face of which

the utmost apathy in the matter is still shown by the far too numerous and disjointed metropolitan sanitary authorities.

THE DIAGNOSIS OF HYDROPHOBIA.

NO disease presents greater variation in the character of the symptoms than hydrophobia. The variation is seen, in its extreme forms, in cases about the origin and nature of which no doubt can exist. In some cases the mental symptom, maniacal delirium, predominates; in others the tetanoid spasms, which are so common towards the close of the disease, are the predominant feature, and give a special character to the case. It is probable that the character of the throat spasms is the great diagnostic feature. But these variations often entail difficulties in the diagnosis and doubts as to the nature of cases, and may lead, by their expression, to erroneous conclusions on the part of the public. A correspondent has called our attention to the newspaper report of a case near Bath which illustrates this. A lad, two months after a bite from a retriever dog (cauterised by a chemist, but apparently not immediately), was seized with spasms in the chest and throat. Tetanus afterwards set in, and he became before death very violent. The account is as accurate a description of the characteristics of many cases of hydrophobia as can be conveyed in as few words. We need not say that tetanus very rarely, if ever, occurs after a wound is quite healed. No doubt it is the description of such cases which has given rise to the idea, hardly yet eradicated from the profession, that hydrophobia and tetanus are the same disease.

POLICE INSTRUCTIONS TO MEDICAL OFFICERS.

THE result of an action tried at the Leeds County Court on the 7th inst. should go far to justify medical men in the refusal to act under instructions from the police. A surgeon has been mulcted in damages £25 for examining a woman charged with concealment of birth, the accused being at the time in custody, and the medical officer acting under direction of the police, who were armed with a warrant. This is a very serious matter, and as the case turns simply on the fact of the examination, it being admitted that the duty was considerately performed, we venture to hope the case will not be left in the position it has assumed. There is already too much trifling with the rights and privileges of the profession in its relations with the legal authority; it would be intolerable if medical men are to be made the catspaws of detective officers who do not understand their duty, or magistrates who are unacquainted with the limits of their power. It may seem a small matter that a surgeon should be cast in an action for damages arising out of the simple performance of an order received through the usual channels, but it cannot be so regarded by a profession already smarting under the general want of consideration displayed by the public it is anxious to serve.

THE TREATMENT OF SUSPENDED ANIMATION.

AT the request of the Royal Humane Society a committee of the Royal Medico-Chirurgical Society has been nominated to reinvestigate and report on the treatment of suspended animation, with especial reference to the method recently introduced into this country by Dr. B. Howard, of New York, and demonstrated by him at several of the hospitals and other public places. The members of the committee are Professors Lister, Burdon-Sanderson, and Curnow, Drs. Sieveking, Lauder Brunton, Andrew, Ralfe, John Williams, and George Harley. Professor Curnow will act as secretary to the committee. The inquiry should, of course, include the three methods—those of Marshall Hall and Silvester, and that suggested by Dr. Howard—on equal terms and conditions of efficiency.

ANATOMY AT THE ROYAL ACADEMY.

UNDER this heading it has frequently been a great pleasure to us to detail facts interesting to students in connexion with the art works in figure drawing or modeling on the Academy walls. On the occasion of the present exhibition we regret that we cannot call the attention of the student of the human form to anything of more than mediocre interest. One piece of bronze, an athlete wrestling with a tiger, alone struck us as possessing anatomical vigour, and that rather forced. May we allude to a striking deficiency in certain of the nude figures—a want of development of the thigh.

MR. MENZIES.

WE record with great regret the death of this gentleman, which occurred on the 3rd inst., after a long illness. Mr. Menzies, as deputy-ranger of Windsor-park, was charged with all matters relating to the sanitary condition of Windsor Castle and the other royal buildings in that neighbourhood. He designed and carried out, as regards the Castle and Frogmore, an extensive and complete system of drainage on the "separate" system, which, with the sewage farm, has proved a great success. The same system was also adopted at Eton two years later, Messrs. Ripley and Simmonds carrying out the work, with the co-operation of Mr. Menzies. At the time that these operations were in progress, the Sanitary Commission of THE LANCET made a special report upon them, and received from Mr. Menzies an amount of courtesy and polite attention as to the details that will not be easily forgotten. Her Majesty has lost an excellent servant, and the country an accomplished and very active practical sanitarian.

THE TEMPERATURE OF THE BREATH.

A CORRESPONDENT desires to place on record the belief, founded on a series of experiments designed to determine the temperature of the breath in health and disease, that the normal temperature of the expired air is several—probably eight—degrees below that of the body generally—i.e., *cir.* 88° to 90° F.

LIFE AND DEATH.

THE "improvement" which consists in employing disused burial-grounds as gardens for the public advantage is progressing, though not so rapidly as we could desire. A recent meeting, attended by the Hon. and Rev. W. H. Freemantle, Dr. B. W. Richardson, Professor Mark, Rev. Harry Jones, Dr. Hardwicke, and others, resolved to promote the conversion of the old yards in Paddington-street to this sensible service. Our warm sympathy is with those who are urging the adoption of these measures. The twofold advantage of getting rid of burial-grounds in populous districts and substituting something more cheerful for the lugubrious spectacle of dilapidated tombs and headstones, and of securing special places for the use of poor children who need space for healthful recreation, must secure the approval, and, as far as possible, the co-operation of all who can help in this matter, which involves no disrespect to the memory of the dead, while it bestows some thought on the happiness and health of the living.

ON Monday last there was a large and influential gathering at the house of the Medical Society of London to hear the Annual Oration, which was delivered by Dr. Alfred Carpenter. The subject chosen was, Alcoholic Drink as Diet, as Medicine, and as Poison. The oration, a most able one, was listened to with the greatest attention. As it will be published *in extenso*, we refrain from giving an abstract of it. The President proposed a vote of thanks to the author,

which was carried by acclamation. During the conversazione which followed, the band of the Royal Artillery, under the direction of Mr. Smyth, the bandmaster, played a choice selection of music, and there was also some excellent glee singing. This innovation appeared to meet with the cordial approval of the company present. A few objects of interest were exhibited; among which was a Paraboloid Illuminator by Dr. Edmunds. This instrument condenses upon a microscopic specimen a large pencil of unrefracted light, and the image is seen upon a black foreground. By its means the markings upon a podura scale were shown to be distinct featherlets.

MR. BEDFORD, the Westminster coroner, held an inquest last week on the body of the late Mr. Edward Tothill, retired physician, of Staines, who was fatally cut and crushed at the Putney Station on the South-Western Railway. The evidence showed that the deceased endeavoured to cross the line, and, as far as is known, presumably with the purpose of catching the down-train on the opposite platform. The engine of an up-train struck him on the shoulder, hurling him against the platform, breaking his arm and wrist, and causing fracture of the skull, from which he died in St. George's Hospital. Mr. Francis Tothill, barrister of the Inner Temple, appeared for the relatives. The jury returned a verdict of "Accidental death."

AT the last meeting of the Academy of Medicine at Paris a paper was read upon the "Germ Theory in relation to Medicine and Surgery," by MM. Pasteur, Joubert, and Chamberland, at the close of which M. Pasteur said that, although unable to speak from personal observation of clinical facts, he was yet in a position fully to endorse the favourable opinions which had been passed as to the influence which the germ theory (first appreciated in its full extent by Lister) would have on the future of surgery, opinions which were recently expressed by M. Sédillot as the outcome of his long professional experience.

THE deaths in London last week numbered 1545, exhibiting a mortality-rate of 22·5 per 1000, against 24·2 in the week previous. Whooping-cough, though still the most fatal of diseases of the zymotic class, showed a tendency to decline in virulence, 117 deaths having been attributed to it, 60 to small-pox, 29 to measles, 27 to scarlet fever, 10 to diphtheria, 29 to different forms of fever, and 23 to diarrhœa. The deaths referred to diseases of the respiratory organs were 284 in number, showing a considerable decline on the return under this heading in the previous week.

OUR correspondent at Peterborough writes: "Despite the efforts made by the Rural Sanitary Authority to prevent the spread of small-pox at Eye, near Peterborough, the disease appears to be gradually on the increase. So far, most of the cases have been brought into Peterborough to the Workhouse Infirmary, and it would seem that, although isolation has been carried out in the cases of individual families attacked, there has, as yet, been no temporary hospital accommodation established in the village itself."

IN a suggestive paper in *La France Médicale* of May 4th, Professor Peter deals with the question of morbid local temperatures, in which he gives the results of an extended research upon surface thermometry of the chest and abdomen in pleural and peritoneal effusions.

M. LUYS has just commenced his course of lectures on the Structure of the Brain and Mental Pathology at La Salpétrière on Sunday mornings at half-past 9 o'clock. The subjects of the present course are, the Cerebral Convolutions and General Paralysis.

AT a special general meeting of the Birmingham Natural History and Microscopical Society, held on the 30th ultimo, Dr. Cobbold, F.R.S., F.L.S., &c., was unanimously elected an honorary vice-president of the Society. The appointment was made on the recommendation of the committee, pursuant to the provision of Law viii., in consideration of Dr. Cobbold's distinguished researches in Natural Science, and for his liberality to the Society. Dr. Darwin is the only naturalist who has received a similar honour.

THE annual meeting of the Poor-law Officers' Association was held on the 7th inst., Dr. Joseph Rogers in the chair. Dr. Lush, M.P., was re-elected president. Dr. Rogers delivered the address. The responsibility of medical officers acting in cases of emergency was discussed. The chairman and secretary were empowered to negotiate for the raising of the question in Parliament. The superannuation of medical officers was commenced.

THE profession will be gratified to observe among the names of candidates nominated by the Council of the Royal Society for the Fellowship, those of Dr. Hughlings Jackson and Mr. Schäfer.

THE GROSVENOR GALLERY.

IN a surprisingly short time Sir Coutts Lindsay's exhibition of pictures has become one of the established institutions of London, and the present collection will serve to place its popularity on a still firmer basis than ever. Perhaps, however, the word popularity is not well applied, as the character of the exhibition causes it to appeal rather to the educated in art than to the public at large. The pictures are comparatively few in number, about a couple of hundred, but they include a remarkable proportion of works of the very highest merit. In "Time and Death," Mr. G. F. Watts has pictured Time as a strong young figure swiftly advancing, hand in hand, with a female, whose face presents the lines of *pallida mors*, and from whose robes are dropping the wayside flowers she has plucked upon her journey through life. Behind, a female figure (Justice?) whose face is concealed, comes after them with sword and scales in either hand. The dreamy emotionless gaze of Time into futurity is well expressed, and the features of Death are faithfully pourtrayed, but why the painter should picture the balance evenly held where death is concerned we are at a loss to know. Mr. Watts has other works of great interest. Mr. Burne Jones sends some magnificent specimens of colour painted some ten, others four, years ago. In two of his most recent works, "Laus Veneris" and "Le Chant d'Amour," he is seen to his greatest advantage. "Pan and Psyche" is a study of the nude, remarkable for the truth of the flesh tints of Psyche, but surely Mr. Jones has given her the hips of another sex, or is this spareness intentional, and in reference to the fashion of the day in female costume? The pictures which will excite, if we are not mistaken, the greatest interest of all are three landscapes by Cecil G. Lawson, whose name has not yet become familiar to the public. "In the Minister's Garden" and "In the Valley" are works of unusual size. In the extent of country and general treatment one is reminded somewhat of the landscape of Rubens. The truthfulness and sweetness of the scenes are such as give one an inexpressible pleasure in regarding them. It would take a large space to describe these works; it must suffice to say that they present nothing conventional, and are as striking for the novelty as well as the refined sentiment with which the subjects are treated. There must be a great career open to the young artist who has contributed these pictures. James Tissot has some of those pleasing illustrations of young womanhood for which he is renowned. In "Croquet" especially there is a charming figure of a graceful girl. Mr. Herkomer sends, amongst other things, a portrait of Richard Wagner, which very faithfully records the powerful features of the illustrious

master. There is a striking picture by Mr. R. W. Macbeth, which is an advance upon his "Potato Harvest" in the Academy last year. Picturesque figures of peasants are tramping from St. Ives market on a blazing summer's evening, with the glowing rays of the sun, now low in the heavens, lighting up the creamy clouds of dust which are kicked up by the feet of the trampers as they hurry along. Sir Coutts Lindsay contributes works which are full of artistic sensibility, but which leave something to be desired in respect of execution. There are works of great interest by Leighton, Poynter, Alma Tadema, Millais, Legros, Heilbuth, Armstrong, Moore, Lehmann. Walter Crane, known for his delightful illustrations to children's books, has a very important painting, "The Fate of Persephone," in which Proserpine, whilst gathering flowers, is overtaken by Pluto. "A Mudlark," by Thomas Graham, represents the wickedest of fair-haired imps seated on a post by the riverside. It is charmingly painted, and unusually fresh and vigorous in treatment. Mr. Prescott Hewett sends a water-colour drawing, "Corfe Castle, from Poole Water," so tender in its misty effects that we forget that the hand which painted it has ever held anything sharper than a brush.

THE PARIS EXHIBITION.

(By our Paris Correspondent.)

I.

ON the 1st inst. was celebrated the solemn inauguration of the Paris Exhibition. At two o'clock on that day the President of the Republic, Marshal Macmahon, accompanied by H.R.H. the Prince of Wales, Amadeus of Savoy, François d'Assises of Spain, Henry of the Netherlands, and other kings or princes, and followed by a procession of ambassadors and great dignitaries of the State, descended the slopes of the Trocadéro, and proceeded to the Palace of the Champs de Mars, amidst the acclamations of an immense crowd, estimated at no less than 500,000 people. The booming of cannon, the extensive display of flags, the brilliant illuminations of the evening, the eagerness and elation of the Paris population, as well as the foreign visitors—nothing was wanting to give the greatest *éclat* to this celebration.

Though I shall have to deal almost exclusively with the medical aspects of the Exhibition, it may be permitted—if only for the purpose of assigning topographical and picturesque positions to the collections I shall have to examine—to throw a general glance over the chief architectural features and arrangements of this Exhibition, containing the most perfect and recent productions of human intellect and activity.

The Paris Exhibition of 1867 covered only a limited area. It consisted mainly of a vast circular edifice, with various galleries encircling each other, whilst the exhibits of the same nation were contained in a triangular space limited by two radii and a portion of the general circumference. Here and there, outside the building, were to be found annexes of a more or less picturesque character. It was compact and convenient, with other features of grandeur or architectural beauty. The Exhibition of this year covers an immense area. It extends over both sides of the Seine, connected by a bridge. It consists of an immense rectangular building on the Champ de Mars, containing the Exhibition proper—viz., the nine classical groups of works of art, textile fabrics, machinery, food products, &c. But it also comprises all the remaining ground of the Champ de Mars, both the banks of the Seine, the slopes of the Trocadéro, the Palace of the Trocadéro, and the Esplanade of the Invalides. All these form part and parcel of the Exhibition, and will contain types of architecture and household economy, archæological and ethnographic collections, horticultural and agricultural shows, ambulance work, and exhibits, &c. The Palace of the Trocadéro, which forms, with the edifice of the Champs de Mars, the most striking architectural feature of the present Exhibition, is intended to be a permanent monument, to serve henceforth for all the great national *fêtes* or important *concours* of Paris. To give an idea of the extent of the Exhibition I may simply mention that the distance between the two palaces is 2000 yards. And yet all this immense extent does not seem useless or vainly occupied, as the intention of the organisers of this Exhibition is to give an elaborate completeness to each branch exhibited. Agriculture, horticulture, and pisciculture, for instance, will receive a full representation. Not only manufactured products will be shown, but everything relating to the previous history and life of the product. Whole fleeces will be shown. The same remark applies to forest exhibits, to pisciculture, horticulture, and, indeed, all the other branches of human industry and education, showing the elaborate completeness which has been aimed at, and which forms one of the most striking and interesting features of the Exhibition of 1878.

Though very many of the readers of these Exhibition articles will, at some time or the other, cross the Channel and see for themselves, and though all of them certainly have read the graphic descriptions and seen the pictorial representations of literary journals, it will be of interest to guide them this once over the Exhibition, noticing as I proceed all the medical aspects and curiosities in my way.

If we enter the principal door of the Palais du Trocadéro, facing the place of the same name, we find ourselves under a large open portico of a severe style, supported by granite pillars from the Pera mountains. We cross the portico, and at the other end, standing at the top of the descending stairs, our eyes are struck with one of the most beautiful panoramic views which ever it has been given them to behold. From our feet the ground of the Trocadéro unrolls in slopes, studded with lawns and flower-plots, and the picturesque kiosks and cottages of various nations, down to the Seine as it runs from Paris to Grenelle and Passy. We see the elegant Paris river spanned with its bridges, covered with the "Flies" and "Swallows," the diminutive steamboats of *la jolie Seine*. That bridge yonder is the connecting one, the Pont de Jéna, considerably enlarged for the purpose, which joins the Trocadéro to the Champs de Mars. Next we see the lawns, the flower-grounds, the garden constructions of the Champs de Mars, and then, in its *ensemble*, the Palace itself, dotting the sky with its flags of all colours, standing out with its domes, and glittering with a glass-like, bluish—rather slate-coloured—appearance, which its structure of glass and iron-work imparts to it. And such a surrounding, such a frame to this picture! On every side from the Seine and the Champs de Mars spread streets upon streets, and monuments upon monuments. The whole of Paris, "the city of cities," lies at our feet, and, as far as our eyes can reach, we see its golden steeples, its well-known, familiar monuments—Notre Dame, St. Sulpice, the Panthéon, the Invalides, the Val de Grâce—one after the other, as far as we can see, till the horizon gets bounded by the slopes of Montmartre on one side, and on the other by the blue hills of Chatillon, memorable in the history of the late war.

Leaving this magic scene, we descend the stairs, and as we pass immediately to our right along the Palace and under the arched grotto we catch another and most curious view of this panorama of Paris through the crystal showers which fall from over our heads through the very basement of the central hall of the Palace, and then, breaking into a number of small cascades, fill successive basins, and finally settle in the large basin, surrounded by gilt ornamental statues of animals, which forms the centre piece of the Trocadéro grounds. This cascade is undoubtedly one of the most striking and novel features of all the grand and plastic arrangements of the present Exhibition, whilst the waters which it furnishes supply a good portion of the low-pressure service of the Champ de Mars.

And now, as we reach the farther end of the Cascade, we

can turn round, and, by facing the palace of the Trocadéro, get a full view of the edifice as it looks down on the Champs de Mars. I must not neglect it in the nomenclature of the Exhibition arrangements, as I shall have occasion more than once to return to it in the course of the future reports. It is in this palace that will be held the important scientific congresses and conferences which will take place in connexion with this great international gathering. Here, also, will be found various scientific and prehistoric collections of great interest. The palace will not be destroyed after the Exhibition, like the one of the Champs de Mars. It will remain, as I have already mentioned, as a great artistic, musical, and scientific place of resort and accommodation. It shows a queer mixed sort of architecture, half oriental and half occidental. It consists of a very tall, circular, central hall, with rising tiers of galleries and promenades, ornamented with small buttresses, with balustrades and pillars, and which form the external architecture of the vast amphitheatre intended for popular ceremonies, and very much like our own Albert Hall. At the base of this hall stands the cascade, while right and left of it spread out two long semicircular wings decorated with kiosks and minaret-like endings, and containing in their length a covered gallery for scientific and artistic collections, and an open promenade.

Before leaving the grounds of the Trocadéro we may just throw a glance on the Japanese farm, so ingeniously and truthfully got up by the Commissioner General, M. Maeda; the Chinese pagoda; the Morocco and Tunis bazaar; the interesting wood-houses and collections of the water and forest administration of France; the aquarium; the Norwegian chalets. I will not dwell any longer on these pretty and characteristic types of national architecture; but I shall have to return later to the collections which they contain.

The Palace of the Champs de Mars has no pretension to architectural beauty or monumental appearance. It is a huge rectangular edifice, built of iron and glass, and presenting, especially at a distance, the bluish tint imparted by these materials. The four corners of the rectangle and the middle of the front and back façades are arranged in domes higher than the mass of the building, and are ornamented with statues, escutcheons, figures, and flags. On the whole, the appearance is exceedingly pleasant and attractive.

The Palace is divided into equal halves, one intended for the French section and the other for the foreign. Each of these halves presents a series of fine galleries running in a straight line from the Seine façade to the Ecole Militaire. These galleries are intended to contain all the exhibits of the various departments, which I have before referred to—namely: 1. Works of art. 2. Education, instruction, materials and processes connected with the liberal arts. 3. Furniture and its accessories. 4. Textile fabrics, clothing, and accessories. 5. Chemical industries, raw and manufactured material. 6. Machinery and processes of mechanical industries. 7. Food products. With all of these groups I shall have to deal in my special reports. The galleries measure 25 metres in width, and are separated one from the other by parallel *promenoirs* of necessarily the same length, but only measuring five metres in width. I shall not in this article give any description of the contents of the galleries, as in no special group is there any complete exhibition, except, indeed, in the British section, where, thanks to the wonderful ability and untiring activity of the secretary of the British Commission, Mr. P. Cunliffe Owen, everything within the palace was in place and perfectly ready on the day of inauguration.

Outside of the Palace, between the four façades and the spacious iron railing which encloses the Champs de Mars, are to be found innumerable annexes and small constructions, where various objects of special interest to us will be found. Thus, in the space along the Avenue de Suffren I noticed a collection of medicinal plants from Holland, various collections of food products from Holland, Belgium, the Portuguese possessions of India; reproductions of school arrangements in Belgium, with special reference to school hygiene; food and forest specimens from Italy, Russia, Hungary, &c.

On the space between the Champs de Mars and the Seine is to be seen the special exhibition of the Society for Help to the Wounded, with all the arrangements of a ready-formed hospital train, with rolling kitchen, medical offices, ambulances, &c., the railway station prepared to receive the wounded, and the temporary sheds and tents around. This ambulance representation, which will receive from me special examination and description, is at the left-hand corner of the space I have mentioned. The remainder of the space is occupied by the Horticultural Exhibition of France and England, the exhibits of the Tobacco Administration, the special exhibition of the Ministry of Public Works (minerals, maps, hospital buildings, &c.). The south façade is especially occupied by bakeries, china-ware, fabrics, &c., and the eastern façade by the Exhibition offices and annexes of machinery, and the ambulances and medical service of the expedition under Dr. Ladreit de la Charrière.

I have now done with the general arrangements of the Exhibition, but before concluding I wish to add some important particulars concerning the ventilation, sewerage, and water arrangements of the Champ de Mars. Thanks to the kindness of M. G. Berger, the head of the foreign section, and of M. Barrois, the head engineer, who guided me over the works, and gave me all the original information, I am able to give a very exact, though brief, description of these important hygienic appointments.

The water supplied to the whole Exhibition is drawn from the Seine by two powerful couples of engines, situate on the right bank. The water drawn up by these engines of 350-horse power is afterwards forced up by a pipe through the middle of the Trocadéro grounds, till it reaches the large basin situate on the Place du Trocadéro, and a larger reservoir situate on the heights of Passy. In addition to this main pipe there is a shorter one of secondary importance situate along the right bank of the Seine.

Thus there are two reservoirs, from the former of which, the Trocadéro basin, descend a series of pipes which supply water to the Champs de Mars Palace, for the condensors, the machine galleries, and generally all the low pressure service; whilst from the larger reservoir, the Passy one, descend pipes which supply the Trocadéro, and the high pressure service of the Champs de Mars, especially the arrangements in case of fire.

The sewerage arrangements are very simple. The engineers have utilised a large sewage-collector, formerly employed for the drainage of the Ecole Militaire, and consisting of two branches, proceeding from this Ecole, and meeting with a V shape in a large collector situate in the area of the Champs de Mars, and leading into the Seine. The sewers of the Palace consist in longitudinal pipes of half a metre in diameter, leading directly into the V branches of the collector, or into partial transverse collectors which empty themselves into the main sewer. In each column and small pillar supporting the edifice there is a pipe for conducting the rain water down to the collector.

The ventilation system is one of open and direct ventilation through the large skylights of the roofing, through open doors, &c. Furthermore, there are open spaces in the flooring of the building which communicate through underground excavations with other apertures existing in the open air outside the Palace. As to the practical sanitary working of these various arrangements I cannot yet judge,

as the buildings have only just been opened to the public. The same arrangements are much more complicated in the Trocadéro Palace, but I cannot now describe them, as this structure is not quite finished.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

THE annual general meeting of this Society was held on Wednesday, April 24th, by permission of the Royal Medical and Chirurgical Society, at their rooms in Berners-street. The chair was taken by Mr. J. Gregory Forbes, Vice-President. A letter was read from the President, Sir George Burrows, expressing his regret that absence from town would prevent him presiding at the meeting. From the statement of the affairs of the Society, read by the Secretary, it appeared that during 1877 a sum of £2949 had been voted to the widows and orphans, £63 10*s.* in excess of the grants of 1876. The expenses of the year were £187 0*s.* 11*d.*, £27 15*s.* less than those of the previous year. The receipts, with the exception of legacies and entrance-fees, all showed an increase. The interest from funded property had been £2576 1*s.* 1*d.*, subscriptions £519 15*s.*, entrance fees 10 gs., donations £111 4*s.* Only one legacy had been received during the year—viz., £250 from the executors of James Graham, Esq. The funded property had been increased by the purchase of £593 19*s.* 10*d.* metropolitan consolidated stock. The Society lost 22 members by death during 1877, and 4 members resigned. Among the deaths may be mentioned those of Sir Wm. Fergusson, V.P.; George Cooper, Esq., V.P.; and Dr. Carr, a director. Only 9 new members were elected. At the end of the year the Society consisted of 385 members. During the year fresh applications had been received from 6 widows and 2 orphans, 4 widows had died or become ineligible, and 3 orphans had ceased to receive grants. On Dec. 31st there were 60 widows and 10 orphans receiving assistance from the Society, and 4 orphans on the Copeland Fund. The following gentlemen were elected directors in the place of the six senior who retired by rotation—viz., Dr. Barnes, Dr. Taylor, A. Willett, Esq., G. Eastes, Esq., Dr. Andrew, and J. Langton, Esq. A vote of thanks to the editors of the medical journals, for their kindness in forwarding in every possible way the objects of the Society, was carried unanimously, and a vote of thanks to the Chairman closed the meeting.

Correspondence.

"Audi alteram partem."

THE COUNCIL ELECTION AT THE COLLEGE OF SURGEONS.

To the Editor of THE LANCET.

SIR,—Having been here for a few days I did not see THE LANCET of last Saturday until too late for a reply to Mr. Bennett May's letter in your number for this week. As the only provincial member of the Council of the Royal College of Surgeons who will feel special interest in the professional affairs of Birmingham, I infer that the personal reference is to me. From what source Mr. May derived his untrustworthy information I need not inquire, but I can give an emphatic contradiction to his statements and imputations.

1. I did not father a scheme in the Council of the Royal College of Surgeons of England by which the "operation of any of its laws might be eluded."

2. I never advised anyone to "obtain the fellowship diploma of the Faculty of Physicians and Surgeons, Glasgow."

3. I do not know that such a degree would give an "*ad eundem* admission to the fellowship of the English College."

4. Within my knowledge I have supported no measure tending to an "abasement and depreciation of the value of the diploma" of the College.

Without further comment I subscribe myself,

Faithfully yours,

Imperial Hotel, Exmouth, May 3rd, 1878. ALFRED BAKER.

FURTHER NOTE ON THE BLOOD-SPIRILLUM OF BOMBAY.

To the Editor of THE LANCET.

SIR,—Just as has been done in Europe, it is possible here also to prepare and preserve samples of blood containing the Spirochoete febris recurrentis *in situ*, and I have now before me characteristic specimens made in Bombay after the newer methods given by Dr. Koch in Cohn's "Beiträge zur biologie der Pflanzen: zweiter band, drittes heft. Breslau, 1877" (page 399, &c). On comparing these Indian specimens with the photographs illustrating Dr. Koch's article, and with another photograph on glass kindly sent me by Dr. B. Sanderson, also bearing in mind the aspects of a specimen of stained blood taken from a European (Russian) fever patient which I saw lately in the possession of Professor Virchow at Berlin, I am of opinion that no appreciable difference exists between the blood-parasites of Europe and of India, and this conclusion, I beg leave to add, is in entire accord with inferences drawn from the natural history and symptoms of the Bombay epidemic, as compared with recorded experience in Europe.

When a sufficient number of typical specimens has been collected I hope to submit some for confirmation of this main point, which, however, seems already sufficiently established.—I am, Sir, your obedient servant,

Grant College, Bombay, 11th April, 1878. H. V. CARTER.

FRACTURE OF THE HUMERUS BY DIRECT MUSCULAR ACTION (THROWING A CRICKET-BALL); NO DISPLACEMENT.

To the Editor of THE LANCET.

SIR,—The great rarity of cases of fracture of long bones which may be certainly attributable to direct muscular action has induced me to place this case on record.

A short time since I was sent for into the country to see a lad fourteen years of age, who had an obscure injury to the upper arm. He was a well-made, muscular boy, fond of games, and on one occasion, when he had made a great effort in throwing a cricket-ball, he felt a sudden "crack," as he described, in his arm, which immediately fell useless to his side. I did not see the patient until some while after the accident happened, and from what I gathered, the fact of fracture could not have been so evident. On lifting the arm there was no bending to be noticed, and it was only by rotating the shaft of the humerus gently that I could detect that the bone was really broken. The seat of fracture lay a little below the insertion of the deltoid. If we analyse the several movements by which a ball would be set in motion by the combined action of the muscles called into play, the last act of all being a violent twist, if the ball be properly thrown, I cannot help thinking that it is possible to explain thereby an instance of the "scraube-fractur" or screw-fracture, and which we may refer to mathematically under the condition of equilibrium in pairs or twists.

There was slight lengthening, which was replaced by the rotation I mentioned, and which rotation both gave me crepitus and rendered the length of the humerus normal, as compared with the opposite arm.

It is interesting to note that the fracture took place at or close to the "deltoid" curve of the humerus, and, consequently, had it not been that the opposing surfaces of the bones were in such form of contact, as I must presume, any deviation must have been immediately recognised.

The case is, at all events, excessively rare and suggestive.

I remain, Sir, yours, &c.,

EDWARD BELLAMY, F.R.C.S.,
Surgeon to Charing-cross Hospital.

Margaret-street, Cavendish-square, May 8th, 1878.

TURPENTINE AS AN EXTERNAL APPLICATION IN SMALL-POX.

To the Editor of THE LANCET.

SIR,—I wish, through the medium of your journal, to direct the attention of the profession to the great prophylactic value of turpentine as an external application in small-pox.

It at once relieves any smarting or irritation, it effectually

corrects the unpleasant odour given off in the more confluent form of the disease, and seems in a marked degree to arrest pustulation, and so modify to a great extent, and, in some instances, I believe, entirely prevent pitting. Its powerful antiseptic and disinfectant properties, too, are indisputable, and in this it possesses an additional advantage in preventing the spread of the infection. I used it with great success in the epidemic of 1871-2, and since then it has given great satisfaction in the hands of some of my professional brethren. It should be applied every night and morning by means of a feather in the proportion of one part of rectified spirits of turpentine to three or four of olive oil. I am of opinion that if this plan of antiseptic inunction were carried out in all cases, the mortality from small-pox would be considerably reduced, and its ravages proportionately checked.

Carbolic acid, thymol, sanitas, terebene, &c., possess similar properties, but neither, I believe, is more effectual for the purpose than the universal and comparatively cheap article of commerce, turpentine. Body-disinfection in the treatment of infectious fevers is not so strictly observed by medical men as it deserves, and I throw out this suggestion in the hope that it may lead to a more general adoption of this mode of treatment.

Yours faithfully,

ARCHER FARR,
Medical Officer of Health, Lambeth.

Vestry Hall, Kennington-green, S.E., May 8th, 1878.

ROYAL COLLEGE OF SURGEONS.

AT an ordinary meeting of the Council of the Royal College of Surgeons, held on Thursday last, the date of election of members of the Council was fixed for July 4th. The minutes of the previous meeting were confirmed. After a short discussion on the amount to be subscribed by the College to the Harvey Memorial Fund—a few thought £50 sufficient, but £100 was ultimately voted,—Sir Joseph Fayrer and Mr. O. Pemberton were admitted Fellows of the College.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen passed the Primary Examination in Anatomy and Physiology at meetings of the Board of Examiners on the 2nd and 3rd inst:—

John L. B. Oakley, Richard G. Cooper, and Owen Pritchard, St. Bartholomew's Hospital; Herbert C. Hallowes, Edward Daly, James F. D. Willoughby, and Henry H. Taylor, St. George's Hospital; Charles R. Tyrrell, Middlesex Hospital; Thomas E. Nodine and Robert E. G. Cuffe, St. Mary's Hospital; Henry R. Evans, Arthur B. Carpenter, and Henry N. Holberton, St. Thomas's Hospital; N. E. Johnson-Gaylor, Arthur S. Stokes, and John R. Rolston, Guy's Hospital; Richard A. Billiald, Walter Johnson, and Charles H. Whitcombe, King's College; Wm. Charnley, University College; Herbert C. Male, Robert W. Mead, and Benjamin Wainwright, Edinburgh; Joseph H. H. Lawrence, Middlesex Hospital.

Of the 169 candidates examined during the last fortnight, no less than 75 failed to satisfy the Board, and were referred for three months' further anatomical and physiological study.

APOTHECARIES' HALL.—The following gentlemen passed their examination in the Science and Practice of Medicine, and received certificates to practise, on May 2nd:—

Lucas, Charles, Bunwell, Cambridgeshire.
Pope, Herbert Francis Montagu, West Malling, Kent.
Williams, Hugh Harries, Haverfordwest.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—At examinations held on the 24th ult. and following days the under-named gentlemen obtained the diploma in Surgery of the College:—

Henry Banks, James Barry, Edward Bennett, Henry Arthur Brennan, Walter Peter Carson, Francis Arthur Denning, Maurice O'Connor Drury, Joseph Fitzmaurice, James Garland, F. Gibbons, Robert Gordon, John S. Hawkins, Richard Lawler Hughes, William James Mackie, John Robert M'Munn, Vincent Ffrench Mullen, Archibald John Nicolls, Thomas Joseph O'Donnell, George St. John Oldham, Patrick J. O'Shaughnessy, Walter C. T. Poole, Alexander Philip, Blacker C. Powell, Edmund Rundle, Thomas Wm. Smartt, Thomas Bennett Walley, Robert Warnock, Cecil George Westropp.

THE annual report of the Leicester Provident Dispensary shows a deficiency of nearly £700.

THE Gloucestershire Eye Institution, Gloucester, is about to be amalgamated with the General Infirmary.

THE Neath Town Council have, by seven votes to four, passed a resolution that it is undesirable to appoint a public analyst at present.

DR. LEWIS PARRY, of Summerhill, Wrexham, has been presented with a silver butter-cooler and a set of fish carvers as a mark of respect and esteem by a few friends on the occasion of his marriage.

THE Governors of the Plymouth Public Dispensary, at a special meeting, have, upon the recommendation of the committee, resolved to establish a provident department, to commence working on the 1st of July.

DR. WILLIAMSON, of Ventnor, has received a letter from Admiral Fanshawe, of the *Duke of Wellington*, at Portsmouth, conveying the best thanks of the Lords Commissioners of the Admiralty for the care and attention bestowed upon the survivors from the *Eurydice*.

SANITARY INSTITUTE OF GREAT BRITAIN.—By permission of the Kew committee of the Royal Society, the experiments upon the ventilators exhibited at Leamington, in October last will be conducted by the committee appointed by the Institute for that purpose, at the "experimental house," Kew Observatory. Members of the press and scientific gentlemen desirous of inspecting the ventilators at work will be furnished with tickets of admission as soon as arrangements are completed, on making application to the registrar of the Sanitary Institute, 20, Spring-gardens, London. An examination of local surveyors and inspectors of nuisances, by the council of the Sanitary Institute, will take place at the rooms of the Medical Society of London, commencing on Tuesday, June 4th.

THE GERMAN HOSPITAL, DALSTON.—The thirty-eighth anniversary of this charity was held a few days since under the presidency of Count Beust, the Austro-Hungarian ambassador, a distinguished party being present on the occasion. The report was a most satisfactory one, for not only had there been no lack of funds or any diminution of usefulness of the institution, but there had been a considerable increase in some items of income, and in the work done. The receipts amounted to £8693 10*s.* 2*d.*, and the expenditure to £8027 4*s.* 2*d.* The hospital is now free from debt, and can boast of several recent improvements, including a new children's ward, an enlarged accident ward, and separate buildings for out-patients. After a telling appeal by the chairman, the donations announced by the secretary amounted to £3640.

Medical Appointments.

BROWN, F. M., L.R.C.P.Ed., L.F.P.S.G., has been appointed Medical Officer for the Castor District of the Peterborough Union, vice Morrish, resigned.

FOX, T. C., M.D., has been appointed a Physician to the St. George and St. James Dispensary, King-street, Golden-square, vice Winn, resigned.

GABB, C. B., L.R.C.P.Ed., M.R.C.S.E., has been appointed Assistant House-Surgeon and Dispenser to the Kent and Canterbury Hospital, vice Lyddon, appointed House-Surgeon.

DRUMMOND, D., M.A., M.D., has been appointed Physician and Joint Lecturer on Clinical Medicine to Newcastle-on-Tyne Infirmary, vice Embleton, resigned.

HARTLEY, J. F., M.B., M.R.C.S.E., has been appointed Certifying Factory Surgeon for Harrogate, vice Myrtle, resigned.

HAYWARD, T. E., M.R.C.S.E., L.S.A.L., has been appointed Resident Medical Officer to the East London Hospital for Children, vice Spooner, resigned.

HEALE, A. L., M.R.C.S.E., L.S.A.L., has been appointed House-Surgeon to the Warneford, Leamington, and South Warwickshire Hospital, at £100 per annum, board, lodging, &c., vice Brown, resigned.

HODGSON, M., M.B., C.M., has been appointed Medical Officer and Public Vaccinator for No. 3 District of the Bedminster Union, Somersetshire, vice Day, resigned.

JENNINGS, W., M.D., C.M., has been appointed Medical Officer, Public Vaccinator, &c., for the Drimoleague Dispensary District of the Skibbereen Union, co. Cork, at £120 per annum and fees, and £20 per annum as Medical Officer of Health, vice Donovan, appointed to the Skibbereen Dispensary District.

LACKERSTEEN, M. H., M.D., M.R.C.P.L., has been appointed a Physician to the St. George and St. James Dispensary, vice Finlay, resigned.

LOGIE, J. S. S., M.D., L.R.C.S.Ed., has been appointed Medical Officer for Evie and Rendall, Orkney.

MACINTOSH, A., M.D., L.F.P.S.G., has been reappointed Medical Officer of Health for the Dronfield Urban Sanitary District for two years.

MACKEY, S. W., L.K.Q.C.P.I. & L.M., L.R.C.S.I., has been appointed Medical Officer for the Districts of Upottery and Dunkeswell, in the Honiton Union, at £42 per annum, vice Maginniss, resigned.

MILNE, T., M.D., L.R.C.P.Ed., L.F.P.S.G., has been appointed Medical Officer and Public Vaccinator for the Parish of Cumbernauld, Dumbartonshire, vice Coutts, deceased.

NOBLE, J., M.B., C.M., has been appointed Parochial Medical Officer for Crathie and Braemar, Aberdeenshire, vice Haldane, resigned.

PERRY, E. V., L.R.C.P.I., M.R.C.S.E., has been appointed Medical Officer for the No. 1 District of the Aylsham Union, Norfolk, vice C. H. Perry, M.R.C.S.E., L.S.A.L., resigned.

PIZEY, G., M.R.C.S.E., L.S.A.L., has been reappointed Medical Officer of Health for the Cleveden Urban Sanitary District for one year.

RECKITT, J. D. T., L.R.C.S.Ed., L.R.C.P.Ed., L.S.A.L., has been appointed House-Surgeon to the Newark Hospital and Dispensary, vice Bain, resigned.

RICHMOND, O. R., L.R.C.P.I., M.R.C.S.E., has been appointed Medical Officer for the Milton District of the Gravesend and Milton Union, vice Arnold, resigned.

ROWLAND, R., F.R.C.S.E., L.S.A.L., has been appointed Medical Officer to the Workhouse, Tregaron Union, Cardiganshire.

SALTER, J. R., M.R.C.S.E., L.S.A.L., has been appointed Resident Medical Officer to the Bournemouth General Dispensary and Cottage Hospital, at £130 per annum, rooms, &c., vice Watson, resigned.

SMITH, C. H., L.K.Q.C.P.I. & L.M., L.R.C.S.I., has been appointed Medical Officer of Health for the Birkdale Urban Sanitary District, Lancashire, vice Lang, deceased.

SPENCER, H. E., L.R.C.P.Ed., L.R.C.S.Ed., has been appointed a Resident Medical Officer to the York Dispensary, at £130 per annum, furnished apartments, &c., vice Baker, resigned.

TAYLER, G. C., M.D., has been appointed Medical Officer for No. 3 District of the Westbury and Whorwellsdown Union, Wilts, vice Edwards, resigned.

WALKER, J. H., M.A., has been appointed House-Surgeon to the Royal Infirmary, Aberdeen, vice Norrie, whose appointment has expired.

Births, Marriages, and Deaths.

BIRTHS.

DONALD.—On the 29th March, at Viewbank, Pasilawa, Ceylon, the wife of William Donald, M.D., of a son.

MCCLOSKEY.—On the 29th ult., at Pump-street, Londonderry, the wife of Joseph Richard McCloskey, M.D., of a son.

MCDONALD.—On the 21st February, at Hamilton, Tasmania, the wife of Wallis McDonald, M.R.C.S.E. &c., of a daughter.

MORRIS.—On the 1st inst., at Euston-place, Leamington, the wife of Joseph Morris, M.R.C.S.E., of a son.

MULLAN.—On the 1st inst., at Ballymena, co. Antrim, the wife of Andrew Mullan, M.D., of a daughter.

REITH.—On the 1st inst., at Union-place, Aberdeen, the wife of Archibald Reith, M.D., of a daughter.

MARRIAGES.

O'BRIEN—TAYLOR.—On the 2nd ult., at the Catholic Cathedral, Bombay, by the Rev. Charles Cooke, S.J., assisted by the Rev. J. Martin, T. M. O'Brien, Surgeon-Major, Army Medical Department, to Olivia Caroline, second daughter of George Taylor, Barrister-at-law, Inner Temple.

RAITT—WELLITON.—On the 4th inst., at Regent-square Church, London, by the Rev. Dr. Raitt, of Woolwich (brother of the bridegroom), Thomas Raitt, M.D., of Burton-on-Trent, to Rosa Margaret, only daughter of the late William Eugene Powell Welliton, Solicitor, of Melbourne, Australia.

TAYLOR—SCOTT.—On the 30th ult., at Sardinia-terrace, Hillhead, Glasgow, by the Rev. William Pulsford, D.D., assisted by the Rev. William Ewen, B.D., Alexander Taylor, M.B., C.M., to Rachel Anne, daughter of E. J. Scott, Esq.

DEATHS.

ALLISON.—On the 20th ult., at Barrow, Lancashire, Joseph Allison, L.K.Q.C.P.I., aged 59.

BALDWIN.—On the 1st ult., at Woodville, co. Waterford, John Power Baldwin, L.K.Q.C.P.I., aged 27.

BOYLE.—On the 17th ult., at Maghera, co. Londonderry, Thomas Boyle, L.R.C.P.Ed., aged 27.

CORDON.—On the 8th ult., at Market-street, Fenton, Richard Ash Cordon, Surgeon, aged 50.

DE LANDRE.—On the 29th ult., at Waterford, Vernon Russell De Landre, L.R.C.P.Ed., aged 33.

DEWAR.—On the 26th ult., at Kirkcaldy, James Dewar, M.D.

DUDLEY.—On the 30th ult., at Over Cheshire, Charles Dudley, L.S.A.L., aged 63.

FURNIVALL.—On the 29th ult., at Boulogne-sur-Mer, John James Furnivall, M.D., aged 85.

HUDSON.—On the 24th March, at High-street, Hackney, Henry Hudson, Surgeon, aged 72.

HUMBLE.—On the 23rd ult., at St. Lawrence, Ramsgate, William Humble, M.D., aged 90.

MANTELL.—On the 29th ult., at Faringdon, George Houston Mantell, M.R.C.S.E., aged 63.

NICHOLSON.—On the 28th ult., at Ryder-street, St. James's, Robert Nicholson, M.D., Surgeon-Major, Bombay Army, aged 60.

NOVERRE.—On the 23rd ult., at Park-street, Grosvenor-square, Arthur Noverre, F.R.C.S.E., aged 62.

THOMSON.—On the 1st inst., at Bordighera, John Thomson, M.B.

WHITE.—On the 2nd inst., at Southport, William White, M.D., aged 71.

WILMOT.—On the 30th ult., at Tunbridge Wells, John Brunston Wilmot, M.D., aged 72.

[N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages and Deaths.

BOOKS ETC. RECEIVED.

R. Harrison: Clinical Lectures on Stricture of the Urethra.
A. Cameron: An Invalid's Pastime.
Dr. A. Flint: The Source of Muscular Power.
Dr. M. T. Masters: An Elementary Course of Botany.
Brain: A Journal of Neurology. Part I.
Dr. H. Fripp: The Doctrine of Contagium Vivum in its Relation to Parasitic Disease.
Dr. H. Fripp: Retrospect of the Transactions of the Bristol Medico-Chirurgical Society.
Dr. McKendrick: Outlines of Physiology.
Sunday at Home. May.
The Sunday Magazine. May.
The Gardener's Chronicle. April.
The Leisure Hour. May.
Catalogue of the Paris Universal Exhibition of 1878. Parts I. & II.
Cassell's Magazine of Art. Part I.
The Monthly Homœopathic Review. May.
The Veterinarian. May.
The Veterinary Journal. May.
The Animal World. May.
The British Journal of Dental Science. April.
Dr. O. Hoff on Hæmaturia.
Dr. P. Cuffer: Recherches Cliniques et Expérimentales sur les Altérations du Sang dans l'Urémie.
C. E. Schwartz: Recherches Anatomiques et Cliniques sur les Gaines Synoviales de la Face Palmaire de la Main.
Rabies or Hydrophobia. Medical Press Commission Reports.
W. D. Hemming: Tinnitus Aurium, or Singing in the Ears.
Dr. H. Von Ziemssen: Cyclopædia of the Practice of Medicine. Vol. XVII.
The Journal of Anatomy and Physiology. April.
The Sanitary Journal.
Dr. J. Stopford Taylor: Report of the Health of Liverpool.
Dr. T. H. Green: The Pathology of Consumption.
Charles Gibbon: The Life of George Combe. Vols. I. & II.
Dr. C. West: Medical Women.
Dr. E. J. Tilt on Uterine Therapeutics.
Dr. D. H. Tuke: Insanity and its Prevention.
Dr. A. Wood: The Conjoint Examination Board Scheme neither necessary nor expedient.
The Practitioner. May.
The Pantile Papers. May.
The American Journal of the Medical Sciences. April.
F. Jones: Life of Admiral Frobisher.

Notes, Short Comments, and Answers to Correspondents.

MORTALITY AMONG MEDICAL STUDENTS.

WE know of no such statistics as are desired by a "correspondent of twenty years' standing," neither are we inclined to think any trustworthy data exist for the calculation of the rates of mortality among medical students. In the Supplement to the Registrar-General's 35th Annual Report our correspondent will find some valuable tables on the mortality among males engaged in different occupations, which were turned to good account by Dr. B. W. Richardson in a series of lectures delivered before the Society of Arts on Occupational Mortality. Taking the mortality of all males aged upwards of fifteen years in England to be equal to 100, the mortality among barristers is equal to 63, clergymen 71, solicitors 102, and physicians and surgeons to 106. In these calculations due allowance is made for the differences in the ages of the males engaged in each of these professions.

The Chairman of the Council of the Hospital Saturday Fund should address his letter to the journal named.

POISONOUS VIOLET POWDER.

To the Editor of THE LANCET.

SIR,—As the discoverer of the fact that "violet powder" largely composed of arsenic is being sold in and around London, and possibly in other districts, I wish to emphasise a point not mentioned in the letter of Messrs. Evans and Jones, which appeared in your issue of the 20th ult. The violet powder which I submitted to those able analysts was in two instances bought of eminently respectable tradesmen, who, of course, know nothing of its poisonous nature. *Neither of these tradesmen were chemists;* their shops are general stores of oils and grocery, and I have reason to believe that it is at shops of this character only that this dangerous stuff is sold. It is packed in small boxes, similar in size to the ordinary match-box, and, the price being but one penny the box, it is largely used amongst the poorer class of mothers. This feature in the case seemed to me to give a particularly atrocious character to the act of selling this powder, so on the 22nd March I communicated the result of the analysis of Messrs. Evans and Jones to the Government authorities at Whitehall. An active inquiry was set on foot by the Local Government Board, the result being that the analysis and the statements accompanying it, as to the disastrous consequences which had attended the use of the powder in the Epping district, were fully confirmed.

Now, Sir, I think the public have some reason to complain that, as evidenced by the letter of Mr. Fred. E. Cockell, jun., in your issue of the 24th ult., this poisonous powder is still being sold, and I think that sufficient time has elapsed for some steps to have been taken by the Government to stop its sale, and to bring the manufacturer into a police court.

I am, Sir, yours truly,

Loughton, Essex, May 1st, 1878. OCT. DEACON

DIPHTHERIA AND DUST-SHOOTS.

WE are very much in need of accurate observations as to the conditions and causes of diphtheria. In regard to the recent cases at Upper Clapton, great suspicion attached to a dust-shoot in the neighbourhood, which the Hackney District Board of Works, in strange imitation of other such bodies, is accumulating there. Dr. Tripe investigated the circumstances of the cases as far as he was able, and came to the conclusion that the dust-shoot was not to blame, but that in twelve out of fourteen houses in which cases of diphtheria occurred there were palpable defects of drains, permitting the escape of sewer-gas. In the discussion which followed Dr. Tripe's report, Mr. Watson and others gave an unsavoury account of the dust-heap, and referred to Dr. Tidy and other medical men as having pronounced them highly detrimental to health. We think there must be some error here; for the Islington parish has a dust-shoot of its own on the advice of Dr. Tidy, who, in vindicating the arrangement before a magistrate, explained the rapidity with which organic matters, even in such deposits, become innocuous in consequence of the beneficent process of oxidation. Though we are not quite disposed to agree that dead cats and dogs and fish can be got rid of with such beautiful rapidity as Dr. Tidy seemed to indicate, Dr. Tripe's careful and particular investigations appear to show that in this case the sewers were at least the medium of transmission of the disease. We shall look forward with interest to the evidence being taken before the Select Committee of the House of Commons as to the injury to health caused by building on rubbish foundations—a very important subject.

Dr. Wm. Yeates.—The paper has been received, and is marked for insertion.

HYDROPHOBIA.

To the Editor of THE LANCET.

SIR,—I think the following case worthy of publication in your journal.

George C——, aged twenty, farm labourer, previously very healthy, no tendency to disease of any kind, was severely bitten on the left hand last summer by a retriever dog, belonging to Major Story, of Mitcham, in Surrey, where the young man was employed. The dog was in a rabid state, and bit a donkey and some pigs, which became rabid, and had to be destroyed, also the dog. Very soon afterwards C—— was again bitten by a sheep-dog, which he immediately killed. Within a week or two he began to feel what he described as "twitchings" up the left arm to the shoulder, constantly occurring. Being a strong young fellow, and blessed with happy ignorance, he took no notice of these symptoms, continuing his work there until last January, when he came home to his mother, living in Oxhey-lane, about two miles from this town. He complained of, in addition to the twitchings, a curious feeling from the back of his neck down the spine, culminating on the night of Feb. 16th in a violent attack of rabies. Fortunately his mother had the assistance of some young men from the neighbourhood, who were obliged to strap him down on his bed to prevent serious mischief.

About two o'clock on the following (Sunday) morning his mother called me up, begging me to go at once and see her son. I went as quickly as possible, and found the young man in a very wretched state. He had bitten himself, and tried to bite others before he was secured. His tongue was swollen, protruding from his mouth, and severely bitten; the muscles of his neck swollen and rigid. I approached him cautiously with some drink, which he dashed from my hand with his head (his head only being free), and had a violent spasm. After a little time I got his attendants (three young men) to turn him, so that I was enabled to apply a strong preparation of cantharides from the nape of his neck down the spine. Not having the proper requisites for a vapour-bath, I extemporised one in the best way I could, and succeeded in producing a very free action of the skin, previously hard and dry. After an hour I left him comparatively quiet, and disposed to sleep, the muscles of the neck being less rigid, and he was able partially to swallow. On my visiting him some hours afterwards I was informed he had a violent paroxysm during my absence, almost overpowering the young men who remained with him, although still bound down. I commenced giving him the bi-chloride of mercury every three or four hours, my object being to bring his system under its influence as quickly as possible. The paroxysms continued at intervals, becoming less violent, for some days, entirely ceasing when the salivary glands were affected. He is now tolerably well.

The case has been criticised, and the character of the disease disputed, simply because "*he did not die*"—an extremely weak argument.

In 1871 I reported in your journal my successful treatment of a case of tetanus, then exceptional. Since other cases have been recorded of successful treatment.

In my humble opinion the narcotic or sedative treatment hitherto so universally adopted in hydrophobia tends rather to fix the disease than eliminate the poison.

Watford, Herts, May 6th, 1878. Your obedient servant, P. O'HARA BRADY.

Black Belt.—The competition for the Alexander Memorial Medal is limited to executive officers of the A.M.D. on full pay. Indian medical officers are not eligible. The address of the President is 6, Whitehall-yard.

MUSCÆ VOLITANTES.

To the Editor of THE LANCET.

SIR,—What "W. M'L." calls "a swarm of fireflies" are, I believe, due to over-distension of the ultimate arterial branches, or of the capillaries of the retina, as I have often seen when the heart has been contracting very strongly, as after running &c., what appeared to be a map of the arteries (the form of the map being always the same) filled with "minute shining points" in rapid motion, about the size of blood-corpuscles, as seen under the microscope, and which gradually fade, and the motion becoming slower as the heart's action subsides.—Yours &c.,

May 6th, 1878. G. B.

IRISH VITAL STATISTICS.

TOGETHER with the English Quarterly Return relating to the first three months of this year, we have received the Irish Quarterly Return for the last three months of 1877, which, however, is dated 7th February last. The value, for comparative purposes, of the separate returns of vital statistics for the three portions of the United Kingdom is well-nigh destroyed by the delay in the preparation of the Scotch and Irish Returns. The statistics of births, deaths, and marriages in Ireland would be full of interest if they were reliable; but the Returns are, beyond question, still very imperfect in this portion of the British Isles. The Return just received reports that in Ireland during the last quarter of 1877 the marriage-rate was equal to 7·8, the birth-rate to 24·2, and the death-rate to 16·3 per 1000 persons living. The English rates during the same period were 18·7, 35·7, and 20·1 respectively. It would be interesting to know within what limits the Irish registration returns are imperfect.

Dr. Robertson.—Under the circumstances we cannot insert the paper.

PRURITUS VULVÆ AND DIABETES.

To the Editor of THE LANCET.

SIR,—As bearing on the communication of Dr. A. Wiltshire in your Journal of April 13th, I send you some notes of a case I have at present under treatment.

The patient was a stout, sallow woman, of about sixty-five, who for some years has had two sinuses, one in the right lumbar and the other in the right iliac region, continually discharging a deep red matter, no doubt coming from the right kidney. The urine deposited at times large quantities of similar pus. She had been losing flesh for some time before she began to complain in November last of pruritus vulvæ, which I attributed to the irritation of the pus in the urine. The persistence of great thirst, however, caused a closer examination of the urine, and detection of large quantities of sugar. Under treatment the pruritus disappeared as the sugar lessened. At the same time the urine became very scanty and highly albuminous, the legs swelled, and bases of lungs gave some medium-sized crepitation. During this time the patient's strength was greatly increased. Subsequently the lungs cleaned; the legs became firm; urine more copious, and highly saccharine. After about ten days the pruritus reappeared. At my last visit the legs were again beginning to swell and the pruritus to disappear. The local treatment was a lotion of hyposulphite of soda; but I think its effect would not have been great if the urine had not become less saccharine during its use. I was led to anticipate pruritus at its second onset by the following from Gaillard Thomas's Diseases of Women, which I had read in the interval:—"I have so often found diabetes accompanied by this symptom that I always examine the urine in obscure cases. It is by many attributed to the constitutional agency of the disease. The marked relief afforded by the systematic use of the catheter has led me to think otherwise. My impression is that the pruritus is probably not connected with the constitutional effects of the disease upon the nerves, but with the direct influence exerted by the disordered secretion" (p. 110).

In this case the absence of polyuria and complete loss of appetite, though there was a dry mouth and thirst, rather obscured the diagnosis, and the pruritus would have been of great value had I rightly understood it in the first instance. Yours &c.,

Abingdon, April 15th, 1878. GEO. GOSSET, M.B.

F. B.—1. Yes; the Society of Medical Officers of Health, the Secretaries to which are Dr. Vinen, St. John's, Southwark, S.E., and Dr. Corfield, 10, Bolton-row, W.—2. Yes; the Medical Department of the Local Government Board, Whitehall, S.W.

Dr. Thomas, (Australia.)—A medical man's social relations cannot justify the violation of professional ethics. He who thinks so should be remonstrated with.

ACTION OF PULV. OPII.

To the Editor of THE LANCET.

SIR,—Powdered opium is classed among astringents, and as such I have always considered it to be. Lately, however, I have been much puzzled about its action. Quite recently I had a case of puerperal fever, and in treating it gave two grains of opium every three hours for some days. The bowels having been confined for four days, I gave an enema of lukewarm water, which acted once freely. In the course of two or three hours the bowels again acted, and a regular diarrhœa set in, attended with vomiting, so that I was roused during the night to see my patient. By giving a tannin mixture and poulticing the abdomen, the diarrhœa and vomiting were stopped, and my patient is quite well. When the diarrhœa set in, the inflammation of the womb was fortunately quite gone, and the diarrhœa was clearly the result of the opium.

In all cases where I have given opium in puerperal fever I have always found the same result occur—viz., diarrhœa after some days. In some of the cases I had combined calomel with opium in equal parts—viz., two grains of each,—and thought the diarrhœa might have been caused by the calomel; but in the last case nothing was given but the pure powdered opium, and yet the same result occurred.

As I see none of the text-books on Materia Medica mention this anomaly in the action of opium, I shall feel obliged if you or any of your readers will throw some light on the subject, as diarrhœa occurring in the course of inflammation of the womb, puerperal fever, or peritonitis is productive of bad consequences, and it is in the treatment of these very diseases opium is considered the sheet-anchor, and chiefly on account of its power of subduing inflammation and relieving pain, by keeping the bowels at rest. As the tincture of opium, unlike the powdered opium, is not liable to the objection of causing diarrhœa when given in frequent doses extended over several days, why is not the former employed in preference to the latter in cases of puerperal fever and peritonitis? and why is it the custom to employ the latter in such diseases? Yours &c.,

May, 1878. A SUBSCRIBER TO THE LANCET.

THE ARMY MEDICAL SERVICE.

Surgeon-Major's comparison of the numbers of the different ranks serving in 1808 and 1878 respectively is inaccurate in this particular, that the title of "surgeon-major" was attained in the latter year after fifteen, instead of twenty, years' service; but this did not carry any change in the relative military rank. We agree in the other points to which our correspondent refers.

Another Surgeon-Major will see that we have discussed most of the points referred to in his letter from his point of view. In some of the others, however, we think he is mistaken.

SOME of *Oliver Twist's* allusions we scarcely understand, or, if we do, we are satisfied he is quite mistaken in them.

One who desires &c.—We differ most decidedly from our correspondent in his views of limited service, even modified as he suggests.

A Candidate, we are afraid, has not carefully considered the financial aspect of his first proposition. He will observe we have advocated most of the other points.

420.—We do not see what grounds our correspondent has of complaint. He entered the service with a full knowledge of the conditions. The remarks on the depreciated value of the rupee do not apply specially to medical officers, but to all persons serving in India, civil as well as military.

I. V. R. C.—We fail to see what advantage would be gained by changing the name of the corps.

YELLOW FEVER.

To the Editor of THE LANCET.

SIR,—Surgeon-Major Hutton, of Leamington, published a letter in *The Times* of the 23rd instant on "Yellow Fever," which would seem to imply that for its appearance in these latitudes "importation" is an essential condition.

The late Dr. Graves, of Dublin, one of the first authorities on fevers in Great Britain, indeed I might say in Europe, has a chapter on Yellow Fever, which states: "That in the epidemic of 1826 he had several cases in the Meath Hospital presenting all the characters of yellow fever. A remarkable fact," he observes, "this form being rarely noticed in this country."[1] In fact, he continues, there is not so much difference between the diseases of Ireland and warmer countries as has been imagined. They differ as to their degrees, not their pathology. The identity of the cases of yellow fever occurring in the Irish epidemic of 1826 with the yellow fever of warmer climates is singularly and remarkably proved by the Scotch epidemic of 1843–4, in which cases of yellow fever were very frequent, as recorded by Dr. Arrot, Physician to the Dundee Infirmary, who says: "The similarity of the symptoms during life and the morbid appearances after death so nearly agree with the description of the yellow fever of the West Indies as to leave little doubt on his mind that the only difference between these diseases and the Dundee epidemic, if difference there be, is in degree, and not in kind." Dr. Graves further states that in June, 1846, he saw two fatal cases of yellow fever, in one of which black vomit was present, and in the summer of 1847 a third case that also had a fatal termination without black vomit, which in many instances of yellow fever is absent.

With regard to the statement in a leader of *The Times* some months back (which Surgeon-Major Hutton is at pains to controvert), "that in a recent outbreak of yellow fever in Jamaica it had even appeared among the blacks, a thing unknown before," it is scarcely necessary to add that no member of the medical profession of average information would have made it. Our very text-books inform us "that though persons of the negro race often escape infection, or are attacked generally in a milder form than whites, yet the degree of immunity in the negro varies much in different circumstances and epidemics." A very different thing to saying that its appearance among the blacks is a thing unknown before. Nevertheless, Surgeon-Major Hutton gives advice it might be dangerous to neglect, being, in fact, a reproduction of the adage, "Venienti occurrite morbo." Ten years ago, in the very hot summer of 1868, we had mosquitoes in this country. Were they imported, or were they due to the great heat which heralded the appearance of yellow fever in these islands in 1826–7 and 1843–4? Having had medical charge of black troops, with their belongings, during a period of three years in the tropics, in one of wh ch the colony I hailed from was visited by an epidemic of yellow fever of more than usual virulence, seizing those who had been resident for years as well as the newly arrived, myself amongst the number, yet the blacks were on that occasion at least scathless. Unless my memory deceives me, Robert Lawson, Esq., when principal medical officer of Jamaica and its military medical dependencies, the latter comprising a very wide area, published some observations in the shape of a pamphlet (1860), with a history of cases, which went far to prove, if they did not prove, that in the Island of Jamaica yellow fever might make its appearance above the sea-level, and amongst the hills or mountains, at heights "unknown before," and where it had been almost taken for granted previously it would "never be likely to get a footing."

Yours &c.,

April 30th, 1878. AN ARMY MEDICAL OFFICER.

P.S.—The moral of the foregoing observations would appear to be that the high medical authority referred to by Mr. Hutton in his communication to *The Times* newspaper, as having often stated that yellow fever is never likely to get a footing in England, would not seem to have been so very far wrong, up to the present time at all events.

Ivora.—We believe that all the schools named are under competent sanitary supervision; but we should recommend our correspondent to visit the several schools, and have an interview with the medical officers, or at least to communicate with those officers before coming to a decision.

[1] Clinical Lectures on the Practice of Medicine. Dublin: Fannin and Co. 1848.

INQUESTS IN HOSPITALS.

THE *Somerset County Gazette* of April 27th contains an account of an inquest held in the Taunton and Somerset Hospital on the body of Talbot Lawkey, who died suddenly of embolism. The only point of interest in the matter is the somewhat sharp words of rebuke of the coroner in reference to the inability of the house-surgeon to give an account of the way in which the deceased came by a fracture of the leg, for which he was admitted. It is really expecting too much of a house-surgeon, in addition to a description of the injury and the mode of death, to give a full and particular account of the accident. The House Committee most properly have taken the coroner's words into consideration, and have amply vindicated their house-surgeon. Considering that those surgeons get no fee for their evidence, they might at least be thanked for it, and not scolded.

Mr. Letters.—The paper has been received, and will be inserted in due course.

AN INTERESTING MIDWIFERY CASE.

To the Editor of THE LANCET.

SIR,—I was called this morning to Mrs. B——, aged thirty, a primipara. I found the os well dilated, head presenting in first position. After a few pains the os passed over the head, leading one to suppose that labour would be rapidly completed. Such, however, was not the case. Each succeeding pain, instead of forcing the head downwards, was flexing it from right to left, so that in a short time the right ear became the presenting part, and I could easily run my finger along the ramus of the lower jaw. I therefore decided on instrumental delivery. To have delivered in the position the head was would have been impossible. I introduced the lower blade, and, using it as a lever in the intervals of pain, succeeded after a little time in working it to its original position. I then introduced the upper blade, and without much difficulty completed delivery. The child was alive, and the placenta was thrown off without hæmorrhage.

Now, if I had allowed this case to go on, what would have been the result? The head would have been still more flexed, and the right shoulder driven lower down. In that position it would have been impacted. It would have been impossible to have introduced the hand to turn, or to effect delivery with the forceps. Nothing short of craniotomy would have relieved. This case convinces me more than ever of the value of early instrumental interference. I was called at 8 A.M., and had completed delivery before 10 A.M. Yours truly,

WILLIAM WIGMORE.

Inverness-terrace, Hyde-park, April 19th, 1878.

Doubtful.—The question whether it is safe, or, in other words, if it is likely to prove a good investment, to buy a practice must be determined by the subsidiary question, whether the connexion it is proposed to transfer is of a nature to be handed over to the purchaser. The issue generally depends upon the conditions of *clientèle*. If the locality will not admit of more than one practitioner being successful, the situation may generally, though not always, be commanded. If, on the other hand, any serious opposition may be set up, the possibility of transfer must arise out of special circumstances which connect the business with a particular house, name, or associations. The value of these ties should be estimated in each case.

An Unfortunate Applicant.—Letters addressed to initials are not taken in, but are at once sent back to the writers.

ERASMUS WILSON TESTIMONIAL.

To the Editor of THE LANCET.

SIR,—I am anxious to know if the above is abandoned. It was started in 1873, and I gave (as many others did) £1 1s. towards it. Would it not be better to return the money subscribed if the project is abandoned?

Yours &c.,

May, 1878. ENQUIRER.

Mr. Ernest Aylward.—It would not be a gracious procedure to apply for an appointment held for years by a professional brother, and still held or desired by him.

Mr. Henry Bartlett might communicate the facts and ask information at St. Luke's Hospital. Possibly the case is *not* incapable of benefit, as assumed.

W. M. M.—1. Certainly not.—2. Yes. Medical men who discover remedies are supposed to disclose them, not to patent them.

PROCURATOR FISCAL AND POST-MORTEM EXAMINATIONS AT SUDDEN DEATHS IN SCOTLAND.

To the Editor of THE LANCET.

SIR,—Can any of your readers inform me as to the law in this matter, or is there any law regulating the action of the Fiscal in such cases? Very frequently it happens that in sudden death, such as heart disease, were the regular medical attendant called upon by the Fiscal, and for a small fee, he could get all the necessary information to fill up the medical certificate; but, instead of this, the particular nominee of the Fiscal is sent, makes an examination, gives in a report, receives his two guineas, and the public are left in the dark as well as the regular attendant. Why not have a coroner's inquest, the same as in England and Ireland? The medical profession in Scotland ought to agitate for a reform in this matter, and let it be attended to at once. In sudden deaths, when the nearest medical man is sent for (especially in cases where any suspicion exist), it not unfrequently happens that very important evidence might be brought to bear on the case by employing the medical man first in attendance; but then he must wait patiently if perchance the Fiscal deems it necessary. Surely reform is needed in this quarter in justice to the medical profession at large. Your answer will oblige,

Yours truly,

April, 1878. A GENERAL PRACTITIONER.

Old Subscriber.—1. A medical officer of health must be a registered practitioner, and have qualifications both in medicine and surgery. For conditions of appointment, see the General Orders of the Local Government Board on the subject, which may be obtained from Knight and Co., 90, Fleet street.—2. A special qualification on State Medicine may be obtained from the University of Cambridge. For particulars of examination, see the Medical Directory, or apply to Professor Liveing, Cambridge.

THE letter of *A Graduate* shall appear in our next.

AORTIC ANEURISM.

To the Editor of THE LANCET.

SIR,—Dr. Linde misunderstands me. By the aortic recoil mentioned in my letter, I meant the force acting upon the blood before it reached the sac of the aneurism. I thought from the way in which his theory was stated that the eddies were supposed to be travelling towards the heart when the systole occurred. A little more consideration, however, would have shown me that such could not have been his meaning, and that the only propelling power he thought of and referred to, although he left it to be inferred, was that of the ventricles.

Having, therefore, now got clearer ideas upon the subject, I should like to criticise.

I should say, then, that, with a reflecting surface such as that of the walls of an aneurism, which recede or give way before the driving force, the energy of the circumferential portion of the blood must to a great extent be spent in dilatation, leaving little, if any, to give rise to reflection of portions in the form of eddies.

As supplemental, moreover, to the remarks in my last letter, I would mention something I have since thought of, which, in my opinion, is perhaps as important a factor in the production of accentuation as the impaired propelling power of the diseased portion of the aorta. I refer to the larger capacity of the aorta in aneurismal dilatation of its parietes. The larger quantity of blood it hence contains must serve to resist to a greater extent than normal the ventricular impetus, and thus favour accentuation.

I am, Sir, yours faithfully,

Peterborough, May 2nd, 1878. C. R. ILLINGWORTH, M.B.

ERRATUM.—In the third paragraph of Mr. Masterman's letter on page 666 of our last issue, for "alcoholic dyspepsia," read *acholic* dyspepsia.

COMMUNICATIONS, LETTERS, &c., have been received from—Dr. Bucknill, London; Mr. Macnamara, London; Mr. Bellamy, London; Dr. Sturges, London; Capt. Hall, London; Mr. Jones, Kidderminster; Mr. Fisher, London; Mr. Hayward, London; Mr. Hughes, London; Mr. A. Baker, Exmouth; Mr. Grancini, London; Mr. Blackett, London; Dr. Wyld, London; Mr. Heath, Hackney; Mr. Hewer, Sheffield; Mr. Aylward, Barnoldswick; Dr. Bell, Glasgow; Dr. Thomas, Gieselg, Australia; Mr. Stewart, Deccan, India; Mr. Park, Belfast; Mr. Letters, Dundee; Mr. Allen, Bollington; Mr. Dolchow, Whitby; Mr. Cole, Taranaiki, New Zealand; Dr. Fergusson, Peebles; Dr. Archer Farr, London; Dr. Rains, Chorlton-cum-Hardy; Mr. Randall, Hull; Mr. Butterfield, Northampton; Mr. Illingworth, Peterborough; Messrs. Sutton and Sons, Reading; Dr. Ferguson, Pittville; Mr. Tallerman, London; Mr. Leadbetter, Glasgow; Dr. Craigie, London; Mr. Brady, Watford; Mr. Pepper, London; Dr. Drummond, London; Mr. Field, London; Dr. Brookhouse, Nottingham; Mr. Holloway, Minster; Mr. Clasher, New York; Messrs. Wilmot, Tunbridge Wells; Miss Webb, Chatham; Dr. Masterman; Dr. Pernisch, Scanfs; Dr. Medlicott, Wells; Dr. Yeats, Manchester; Mr. Sewill; Mr. Carter, Southend; Mr. Byrne; Dr. Hayman, Walton-on-the-Naze; Dr. Rockett, Loughborough; Dr. Tatham; Mr. Shoaf, Barrow-in-Furness; Mr. Blount; Mr. Duke; Mr. Bryden, Stockport; Mr. Fradelle; Mr. Butler, Shepton Mallett; Mr. Bailey; Mr. Buckle, York; Mr. Evans; Mr. Fosbroke, Birmingham; Mr. Jones, Carmarthen; Mr. Heale, Winchester; Messrs. Seabury and Johnson; The Registrar-General of Births and Deaths; IVOR; An Old Subscriber; D. S.; Enquirer; The Secretary, National Hospital for Consumption; J. H. H T.; A Provincial Fellow; G. B.; Hygiene; J. M. S.; Hernia; Medicus; M.B.; X. Z., Bath; J. B.; Aliquis; Cantab.; M.D.; F. B.; &c. &c.

LETTERS, *each with enclosure*, are also acknowledged from—Dr. Dobell, London; Mr. Allen, Picton, New Zealand; Messrs. Jolly and Sons, Norwich: Messrs. Southall and Co., Birmingham; Mr. Oswald, Stafford; Mr. Morrish, Liverpool; Mr. Jones, Dowlais; Mr. Jenkins, Stirling; Mr. Johnson, Woodsetton; Dr. Robertson, Cheltenham Messrs. Gardener and Co., Wisbeach; Mr. Swinhoe, New Swindon; Mr. Cole, Hatton; Mr. Pickburn; Mr. Piggott, Shepherd's-bush; Messrs. Ryott and Bisch, Newbury; Mr. Wing; Mr. Thomas, Pontypool; Mr. Gardner; Mr. King; Dr. M'Lintock, Shrewsbury; Mr. Penn, Teignmouth; Mr. Blomfield, Lynn; Mr. Ivens, Kidderminster; Mr. Tayler, Glasgow; Mr. Steele, Scarborough; Dr. White, Retford; Mr. Shaw, Sheffield; Mr. Powell; Mr. Stanley; Mr. Richards, Birmingham; Mr. Mitchell; Mr. Coates; Mr. Hale; Dr. Ridpath, Driffield; Mr. Woodward; Mr. Tyle, Minchinhampton; Mr. Whidborne; A. K.; L.R.C.P.; D. S., Edinburgh; E. G., Stoke Newington; F. B.; M. A. C.; J. M. S.; F. F. S.; H. C. W.; R. C. M., Aberdeen; D.; R. R.; M. M. R.; E. G.; Medicus, Manchester; C. O., Cork; A. B., Edinburgh; Omega; Sigma; D. W.

Daily Free Press, Citizen, Spiritualist, British Architect, Teviotdale Record, New York Times, Somerset County Gazette, Colonies and India, Wrexham Guardian, Macclesfield Guardian, East London Observer, Macclesfield Courier, Leeds Mercury, Yorkshire Post, Islington Gazette, Preston Guardian, &c., have been received.

METEOROLOGICAL READINGS.

(Taken daily at 8 a.m. by Steward's Instruments.)

THE LANCET OFFICE, MAY 9TH, 1878.

Date.	Barometer reduced to Sea Level, and 32° F.	Direction of Wind.	Wet Bulb	Dry Bulb	Solar Radiation in Vacuo	Max. Temp in Shade	Min. Temp	Rain fall.	Remarks at 8.30 A.M.
May 3	30·02	W.	55	58	86	65	53	..	Overcast
,, 4	30·11	WNW	50	54	99	63	47	..	Fine
,, 5	30·08	E.	53	59	97	68	43	..	Cloudy
,, 6	29·72	S.E.	55	58	88	68	49	..	Cloudy
,, 7	29·69	W.	56	60	97	69	56	0·03	Hazy
,, 8	29·63	W.	53	54	81	60	53	1·33	Raining
,, 9	29·88	E.	52	54	98	67	49	0·09	Fine

Medical Diary for the ensuing Week.

Monday, May 13.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M. each day, and at the same hour.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M. each day, and at the same hour.
ST. MARK'S HOSPITAL.—Operations, 9 A.M. and 2 P.M.
METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.
ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.

Tuesday, May 14.

GUY'S HOSPITAL.—Operations, 1½ P.M., and on Friday at the same hour.
WESTMINSTER HOSPITAL.—Operations, 2 P.M.
NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
WEST LONDON HOSPITAL.—Operations, 3 P.M.
ROYAL INSTITUTION.—3 P.M. Mr. T. Thiselton Dyer, "On some Points in Vegetable Morphology."
ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.—8 P.M.
ROYAL MEDICAL AND CHIRURGICAL SOCIETY.—8½ P.M. Mr. P. Kidd, "On the Pathology of Hæmophilia."—Dr. Reg. Thompson, "On the Pathological Traces of Pulmonary Hæmorrhage."—Dr. Gowers: "The Brain in Congenital Absence of one Hand."—Dr. Topham: "Abscess within Thorax, accompanied by Pulsation."

Wednesday, May 15.

MIDDLESEX HOSPITAL.—Operations, 1 P.M.
ST. MARY'S HOSPITAL.—Operations, 1½ P.M.
ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.
ST. THOMAS'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.
KING'S COLLEGE HOSPITAL.—Operations, 2 P.M., and on Saturday at 1 P.M.
LONDON HOSPITAL.—Operations, 2 P.M., and on Thursday and Saturday at the same hour.
GREAT NORTHERN HOSPITAL.—Operations, 2 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M., and on Saturday at the same hour.
SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2½ P.M.
ASSOCIATION OF SURGEONS PRACTISING DENTAL SURGERY.—3½ P.M. Mr. Gaine, "On some forms of Trismus arising from Dental Irritation."

Thursday, May 16.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M.
ST. BARTHOLOMEW'S HOSPITAL.—1½ P.M. Surgical Consultations.
ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 4 P.M.
CHARING-CROSS HOSPITAL.—Operations, 2 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and on Friday at the same hour.
ROYAL INSTITUTION.—3 P.M. Lord Rayleigh, "On Colour."
HARVEIAN SOCIETY.—8½ P.M. Dr. Hughlings Jackson, "On a Large Tumour of the Left Cerebral Hemisphere."—Mr. Lister, "On the Effects of Position upon Local Circulation."

Friday, May 17.

ST. GEORGE'S HOSPITAL.—Ophthalmic Operations, 1½ P.M.
ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.
ROYAL INSTITUTION.—8 P.M. Weekly Meeting.—9 P.M. Mr. A. Graham Bell, "On Speech."

Saturday, May 18.

ROYAL FREE HOSPITAL.—Operations, 2 P.M.
ROYAL INSTITUTION.—3 P.M. Professor H. Morley, "On Richard Steele."

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Mons. DE LOMINIE, 208, Rue Grenelle St. Germain, Paris.